Nordic Swan Ecolabelling for

Toys

Version 3.0 • date – date

Consultation document

Nordic Ecolabelling

Content

095 Toys, version 3.0 Date

This document is a translation of an original in Danish. In case of dispute, the original document should be taken as authoritative.

Addresses

In 1989, the Nordic Council of Ministers decided to introduce a voluntary official ecolabel, the Nordic Swan Ecolabel. These organisations/companies operate the Nordic Ecolabelling system on behalf of their own country's government. For more information, see the websites:

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1 Summary

Toys are a product area with many different materials and functions. What particularly unites the product group is the use phase, during which the product is often in close contact with the child or at least in the child's room. For all toys, it is therefore relevant to ensure that children are not exposed to harmful chemicals from toys. The Nordic Swan Ecolabelling of toys is pertinent since public authorities and consumer organisations regularly find prohibited substances that are harmful to health in toys. Nordic Swan Ecolabelled toys are therefore subject to stringent requirements concerning substances that are harmful to health, and to requirements for a third-party control of selected tests from the EU Toy Safety Directive.

Toy consumption is relatively high, which makes it relevant to consider the environmental impact in terms of resource consumption, the climate, chemicals, and biodiversity. The overarching environmental gain thus lies in ensuring that environmental requirements are set for all the ingoing material types. Nordic Swan Ecolabelled toys are subject to strict environmental requirements regarding the materials, the packaging and, for some types of toys, also requirements relating to spare parts. Toys are often produced outside the EU and may have a long production chain, which increases the risk of non-compliance with the requirements of the EU Toy Safety Directive. In addition to a third-party control of tests in line with the EU Toy Safety Directive, Nordic Swan Ecolabelled toys are subject to a requirement that the licensee shall annually check and evaluate suppliers to ascertain compliance with the requirements for Nordic Swan Ecolabelled toys. Since production often takes place outside the EU, there are also requirements for responsible production in terms of workers' rights.

More specified requirements concerning third-party control of tests in line with the EU Toy Safety Directive:
In this, generation 3 of the criteria for the Nordic Ecolabelling of toys, the requirements relating to third-party control of tests in line with the EU Toy Safety Directive have been made more explicit, for example by specifying, for each type of material, which of the EN 71 safety requirements in the EU Toy Safety Directive must be documented.

Tightened chemical requirements
In this, generation 3 of the criteria, the requirements concerning chemicals have been tightened. Requirements concerning chemicals in or on the materials are tailored to those materials. In addition, the chemical requirements have been simplified in that some specific substances from generation 2 are not mentioned in the prohibition requirement. They are still prohibited, for example because they have a classification that is prohibited. Read more in the background to each requirement.

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers the use of substances that are harmful to health in toys for children under the age of 3 or toys intended to be placed in the mouth.

Chemical requirements are added to or amended in Appendix C on an ongoing basis[1]. This, generation 3 of the criteria has added requirements for substances listed in Appendix C (substances included in Appendix C as per March 2020). Nordic Swan Ecolabelled toys go further than the EU Toy Safety Directive, in that the requirements apply to all types of toys, not only toys for children under the age of 3 or toys intended to be placed in the mouth.

The revision has focused on ensuring that, where the criteria require testing for ingoing substances, the test methods are, as far as possible, identical to those set out in the EU Toy Safety Directive.

Tightened material requirements:
In this, generation 3 of the criteria, the requirements concerning recycled, reused and bio-based materials have been tightened. Recycled and reused materials support the circular economy, but at the same time it is important that the materials in toys do not contain substances that are harmful to health. The criteria therefore contain requirements for the testing of recycled/reused materials and/or the sources from which they originate. For bio-based materials, there are requirements that the raw materials must be sustainable. Biodegradable plastics or plastic composites can disrupt the processes at the recycling plants and reduce the quality of the recycled plastic. There is therefore a ban on these types of materials in the criteria.

New packaging requirements:
This, generation 3 of the criteria, contains new requirements concerning packaging. To limit the environmental impact from packaging materials and the transport of toys, there is a requirement setting out the acceptable ratio between the volume of the packaging and the volume of the toy. There are also requirements relating to recycled materials and to the design of the packaging, to ensure that the packaging materials can be recycled.

New requirement concerning spare parts:
This, generation 3 of the criteria, contains a new requirement regarding spare parts for certain types of toys, where this is judged to be most relevant and thus can achieve high environmental gains. Offering spare parts means that the service life of the toy can be extended, thus reducing its environmental impact.
New requirement on supplier controls:

This, generation 3 of the criteria, includes a new requirement for the licensee to conduct annual assessments of the suppliers who assemble the toy into the finished product, make semi-manufactures or apply surface treatments. The checks cover familiarity with the requirements for Nordic Swan Ecolabelled toys, production procedures in the event of changes of the Nordic Swan Ecolabelled toys and updating of certification schemes.

For a further description of the changes in the revised version, see the background text for the requirements.

[1] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

2 Basic facts about the criteria

Nordic Swan Ecolabelled toys are subject to stringent requirements concerning substances that are harmful to health, which go further than the EU Toy Safety Directive. Nordic Swan Ecolabelled toys comply with strict environmental requirements throughout the life cycle of the toy and support a circular economy.

2.1 Products that may be Nordic Swan Ecolabelled

Toys for children under the age of 14 can be Nordic Swan Ecolabelled if the toy comprises one or more of the following materials:

- Plastic, foam, silicone, and rubber
- Textiles, hide/skins, and leather
- Filler materials
- Metal
- Paper, paperboard, and cardboard
- Solid wood and bamboo
- Wood-based panels

In the case of toys for children over the age of 3, other materials may individually make up no more than 1% by weight of the toy, and in total other materials must not exceed 2% by weight. Toys for children under the age of 3 must not contain any materials other than those covered by requirements in these criteria.

A toy is defined as a product that is exclusively or partially designed or intended for use by children under the age of 14 during play. The toy must be covered by the EU Toy Safety Directive (2009/48/EC). Typical toys that qualify for a Nordic Swan Ecolabel include rattles, teething toys and activity toys made of various materials for children under the age of 3. Building blocks, dolls, soft toys, puzzles, spades, cars, doll's houses, and train sets may also be Nordic Swan Ecolabelled. Ride-on cars and balance bikes for children are eligible for the Nordic Swan Ecolabel if they are covered by the EU Toy Safety Directive.

Products not covered by the EU Toy Safety Directive cannot be Nordic Swan Ecolabelled in accordance with the toy criteria. However, if they fall within other product categories for which ecolabelling criteria are already developed, the products can be Nordic Swan Ecolabelled accordingly. Such criteria might include Office and hobby supplies (writing instruments, erasers, and hobby paint) and Textiles. Notepads and drawing, colouring and children's books can be Nordic Swan Ecolabelled under the criteria for Printed matter and paper products. Activity toys (defined as toys for private use where the support structure is stationary while the activity takes place, e.g. slides, roundabouts, swings and climbing frames) are Nordic Swan Ecolabelled under the criteria for Outdoor furniture, playground and park equipment. If there is any doubt about which criteria an activity toy belongs to, contact Nordic Ecolabelling. Nordic Ecolabelling reserves the right to determine the criteria to be used for any product application.

For further information, please contact the Nordic Ecolabelling organisation in the relevant country (see addresses at the beginning of the document).

What cannot carry the Nordic Swan Ecolabel?

Electronic toys, single-use toys (incl. stickers and temporary tattoos), balloons, water balloons, chemistry sets, slime toys, soap bubbles, other toys containing liquids (including encapsulated liquids) and toys with parts that could be eaten are not eligible for the Nordic Swan Ecolabel.

Hobby supplies cannot be Nordic Ecolabelled according to these criteria. Hobby materials are materials used for hobbies, crafting and pictorial art. Examples of such materials include modelling wax, clay, plaster, and chemistry sets. See the criteria for the Nordic Swan Ecolabelling of Office and hobby supplies for details on the products that fall within their category.

Appendix 1 provides an overview of the product areas that are not regarded as toys under the EU Toy Safety Directive (2009/48/EC), including babies' soothers, fireworks, sports equipment and bicycles designed for sport or for use on public roads.

2.2 Motivation for Nordic Swan Ecolabelling

The Nordic Swan Ecolabelling of toys is relevant from both an environmental and a health perspective. Nordic Ecolabelling sets tougher requirements concerning chemicals than the EU Toy Safety Directive does, and requires the completion of independent, third-party checks relating to relevant environmental and health requirements, and checks on compliance with the EU Toy Safety Directive. One of the ways that Nordic Ecolabelling goes further is in setting requirements that exclude not only CMR substances at substance level, but also phthalates, halogenated organic compounds (e.g. PFOA and PFOS), and endocrine disruptors. In addition, there is a focus on ensuring that the materials used meet relevant environmental requirements, such as wood being sourced from certified sustainable forestry.

2.3 Messages for Nordic Swan Ecolabelled toys

Children are often in close and prolonged contact with their toys and small children also sit and chew on their toys. The criteria therefore have a focus on chemical exposure in the use phase. Below are descriptions of what characterises Nordic Swan Ecolabelled toys and the messages that apply for the product group.

Nordic Ecolabelled toys:

- Meet strict health requirements for chemicals. It means that the toys are free from substances that can cause cancer, damage genes or reproductive capacity. They are also free from heavy metals, perfumes, nanoparticles, phthalates, and bisphenol A, F and S.
- Meet strict environmental requirements for materials used in the toy.
- Meet strict requirements on the amount and type of packaging, among other things to increase recyclability.
- Produced under proper working conditions where the toy manufacturer must comply with conventions from the International Labour Organisation (ILO) Conventions.

For toys in plastic in addition:

- Consists of plastic that can be recycled.

For toys that contain bioplastics in addition:

- Contain bioplastics that meet requirements to the vegetable raw materials.

For toys in textile in addition (only use the USPs if the mentioned textile is included in the toys):

- Are made of organic or recycled cotton.
- Are made of wool, which is organic, recycled or have low content of pesticides.
- Contain a high proportion of recycled synthetic fibers of fossil origin.
- Contain synthetic fibers of bio-based origin that meet requirements to the vegetable raw materials used.

For toys in metal in addition:

- Do not have coatings of cadmium, chromium, nickel, copper, tin, or lead.
- Contain a high proportion of recycled metal.

For toys in wood in addition:

- Contain a high proportion of wood from certified sustainable forestry.

2.4 The version and validity of the criteria

Nordic Ecolabelling adopted generation 1 of the criteria document for toys on 14 June 2007. Generation 2 was approved on 21 March 2012, and these criteria are now up to version 2.5, effective until 31 March 2022.

2.5 Nordic Swan Ecolabel licences

Licences for toys in the Nordic region as of March 2020:

Denmark: 2 (covering approx. 215 products)
Norway: 0
Sweden: 0
Finland: 0

3 The Nordic market

As part of the evaluation of the criteria in 2016, a market analysis was conducted that resulted in an overall description of the Nordic markets for toys, taking into account manufacturers, environmental marketing, public procurement, private sales and other labelling schemes within the product group. At the same time, interviews were carried out with relevant toy manufacturers (or resellers) in the Nordic countries. The aim was to establish how the Nordic toy industry approaches environmental issues and what they think about Nordic Ecolabelling's criteria. The market analysis showed that there should be a focus on the following two segments within the product group:

Toys for babies and young children
In this context, the parents make the decision about purchasing the product, and there is a link here with other Nordic Ecolabelling criteria that are widespread within the market (e.g. diapers and personal care products).

Institutional toys for nurseries and kindergartens
There is considered to be potential here via public procurement, particularly for toys with educational or creative functions, such as construction toys, puzzles and board games.

There are several examples of people in public procurement who would like to be able to specify the purchase of ecolabelled toys, and public authorities that have a strong focus on reducing children's exposure to harmful chemicals in their everyday lives. The assessment is that the key sales parameters for these products are chemicals and materials. It is therefore important that the criteria are strict on chemicals and cover the areas on which there is a public-sector focus. There is also a need for clear and convincing messages that can be linked to the product group. Similarly, the differences between the EU Toy Safety Directive and the criteria for Nordic Swan Ecolabelled toys should be both significant and clear.

The market analysis also showed that many of the major manufacturers are waiting for demand to pick up in the market, and there is no great tradition of them branding themselves on the basis of health and the environment. There should instead be a focus on developing the market together with "front-runners". These might be smaller manufacturers who have the same focus on health and the environment as Nordic Ecolabelling does. The approach could include a collaboration on a joint PR initiative in this area. These "front-runners" should therefore be located.

Development potential
In our assessment, Nordic Ecolabelling has considerable development potential in the institutional market under the new procurement legislation, which makes it possible for public procurers to require ecolabelled toys. Potential exists for products sold to nurseries and schools, such as balls, building blocks and other toys for educational institutions. There is an open window of opportunity, and if we are able to establish licences in this area, this should ripple out to toys aimed at consumers.
In Denmark, the City of Copenhagen and the Partnership for Public Green Procurement (POGI) have sent out a joint "love letter" to all the nation's local authorities and regions, urging them to support the initiative to promote ecolabelled toys and office furniture. And many are keen to jump on board. So far, 36 local authorities and 2 regions have chosen to sign up.

4 Other labelling schemes and steering instruments

At EU level, toys are covered by CE marking requirements as set out in the EU Toy Safety Directive (2009/48/EC), which sets safety requirements and specific requirements concerning certain chemicals. There are also EU regulations restricting ingoing substances in particular materials.

4.1 EU Toy Safety Directive

The EU Toy Safety Directive (2009/48/EC) requires an assessment of chemical safety, whereby the manufacturer can choose to conduct its own checks without any demand for third-party verification. The manufacturer decides which test is relevant (and naturally has to be able to justify this) and whether, for example, the CMR ban is applicable to the individual substances.

A thorough analysis has been conducted to establish what the EU Toy Safety Directive assurances compare with a Nordic Swan Ecolabelled toy. This demonstrates that Nordic Ecolabelling sets tougher chemical requirements than the EU Toy Safety Directive. See an in-depth description of the different guarantees provided by the EU Toy Safety Directive and Nordic Ecolabelling in Appendix 4.

Appendix C of the EU Toy Directive covers substances used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added or amended in Appendix C on an ongoing basis[2]. For each requirement in the criteria referring to substances for which there are requirements in Appendix C, there is an explanatory text in the background document.

4.2 EU regulations and specific national regulations

EU Regulation No 1272/2013 on the restriction of polycyclic aromatic hydrocarbons (PAHs)

Toys, including activity toys, and childcare articles, shall not be placed on the market, if any of their rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity, under normal or reasonably foreseeable conditions of use, contain more than 0.5 mg/kg (0.00005% by weight of this component) of any of the listed PAHs.

EU Regulation No 1907/2006 on the prohibition of phthalates

In addition to the above, there are also rules applicable to the whole of the EU in Regulation No 1907/2006, Annex XVII, entry 51 and entry 52[3]. It is prohibited within the EU to produce, import, or sell toys and childcare items for children aged 0–14[4], if they contain more than 0.1% by weight of the following phthalates:

- if products contain the phthalates DEHP (bis (2-ethylhexyl) phthalate), DBP (dibutyl phthalate) and BBP (benzyl butyl phthalate),
- if products that may enter the mouth contain the phthalates DINP (di-isononyl phthalate), DIDP (di-isodecyl phthalate) and DNOP (di-n-octyl phthalate).

For the purposes of these requirements, a product, or part thereof, is considered small enough to enter the mouth if any one dimension is less than 5 cm.

Specific Danish regulations for toys

Phthalates:

There is a national regulation concerning phthalates in toys and childcare items for children aged 0–3. Denmark prohibits the import, sale or use of toys and childcare items for children aged 0–3 if the products contain more than 0.05% phthalates by weight.

Pentachlorophenol (PCP):

There is a ban on importing, selling, exporting, and using goods that contain 5 ppm or more of pentachlorophenol or salts and esters thereof.

[2] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en
[3] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:164:0007:0031:da:PDF
[4] EU Ban on phthalates as described by the Danish Environmental Protection Agency https://mst.dk/kemi/kemikalier/regulering-og-regler/faktaark-om-kemikalieregleme/ftalater/

Dimethyl fumarate (DMF):
There is a ban on importing and selling goods that contain more than 0.1 mg DMF/kg, or where DMF is declared. The Danish regulation (Bekendtgørelse nr. 325 af 28. april 2009) is based on the EU regulations (Commission Decision 2009/251/EC of 17 March 2009) [5]. This regulation applies to all goods, not just toys. The permitted amounts in the Danish regulation are identical to those in the EU regulation. However, the Danish Environmental Protection Agency states on its website that Denmark has tougher rules than the rest of the EU when it comes to DMF in toys[6].

Specific Swedish regulations for toys
In Sweden, statutory requirements concerning toys are regulated by European legislation and the EU Toy Safety Directive, supplemented by ordinances and regulations such as the Ordinance (2011:703) on Toy Safety, the Act (2011:579) on toy safety, the Swedish Consumer Agency's Regulations on toy safety (KOVFS 2011:5), the Swedish Chemicals Agency's Regulations on flammability and the chemical properties of toys (KIFS 2017:8) and the Swedish National Electrical Safety Board's Regulations on the electrical properties of toys (ELSÄK-FS 2011:1).

Specific Finnish regulations for toys
Toys are covered by the EU Toy Safety Directive (2009/48/EC). In Finland, toys available on the market must meet the requirements contained within the Act on the Safety of Toys (1154/2011). This act implements the requirements of the EU Toy Safety Directive nationally within Finland.

Specific Norwegian regulations for toys
Toys are covered by the Norwegian regulation on the safety of toys, which is harmonised with the EU Toy Safety Directive.

EU Public Procurement Directive
It is expected that the EU Public Procurement Directive from 2014, which was finally implemented in the Nordic countries around 2016, might be able to influence the public procurement of toys for childcare institutions and schools.

4.3 Other labels
Beyond CE marking, there is no widespread use of other labels to indicate environmental or health standards. There are some examples of FSC or Oeko-Tex being used for wooden and textile toys, respectively.

Blaue Engel – Toys
In 2017, Blaue Engel published version 1 of the ecolabelling criteria Toys DE-UZ 207 for various types of toys[7]. Criteria for textile toys already existed, but the current criteria also cover toys in wood, plastic, leather, paper, natural rubber, and metal. The criteria have a strong focus on chemicals.

[5] Danish Environmental Protection Agency, as per March 2020: https://mst.dk/kemi/kemikalier/fokus-paa-saerlige-produkter/legetoej/hvilke-pligter-har-jeg-som-fabrikant/
[6] Danish Environmental Protection Agency: https://mst.dk/kemi/kemikalier/regulering-og-regler/faktaark-om-kemikaliereglerne/dmf/
[7] Blaue Angel Toys DE-UZ 207 https://www.blauer-engel.de/en/products/home-living/spielzeug

By the end of 2019, three licences had been issued: two licences for textile soft toys and one licence for building blocks comprising 60% sawdust and 40% recycled plastic.

5 Environmental effects associated with toys

Toys are a product area that encompasses many different types of product, and includes many different types of material, with countless material compositions in varying ratios. It is therefore difficult to define a general functional unit that is representative of the product group, and it is thus very difficult to quantify the environmental impact over the life cycle of a product. In this case, it is more meaningful to make a qualitative assessment of the product area and identify the environmental and health impacts associated with toys made of different types of material.

The use phase is what unites the product group from a life cycle perspective. Characteristics of a toy in the use phase are that children are the target group and that the product is often used in close contact with the child. The contact is even closer for very young children, who will put the toy in their mouth. Exposure to harmful chemicals is thus a highly relevant consideration for the product group.

Nevertheless, a search for toy related LCAs has been conducted, to establish what factors are of environmental relevance for the type of toy studied. Only a very small number of published studies have been found. The international toy manufacturer Mattel has conducted an LCA for the whole of their toy production. It has not been published, but the company describes having selected specific areas of production for environmental improvements, based on this LCA. The areas relate to the resource impact from products and packaging, and the chemical impact during production, for example in the form of VOC.

The following section presents an environmental and health assessment of the product group, based on the materials covered in the product group. This has been done in the form of a MECO analysis.

5.1 MECO analysis

The environmental and health impacts that are found to be relevant in a toy's life cycle are presented in the qualitative MECO matrix below. A MECO analysis of the product group addresses materials, energy, chemicals, and other aspects in relation to raw material production, the end product's production phase, use phase and disposal phase.

As described above, toys are a very disparate product group, with huge variations in design and material choice. The design, and thus often the material choice, has a major impact on the finished toy, and there is therefore a need for a certain amount of material freedom in the criteria. There is thus nothing to gain by picking out an individual material type that is best for the environment, as this would significantly restrict the product group. The overall environmental gain lies in ensuring that tough requirements are set for all material types used, and potentially prohibiting or limiting those materials that have an environmental issue, but where there is no great steerability or potential for resolving this issue.

The criteria thus cover products made from many different materials. In many of the requirements, the functional unit must therefore be viewed in relation to the material type. The MECO matrix is designed to encompass all the materials included in the current criteria. As such, it is difficult to drill down into the details for each material, and the MECO matrix therefore operates at a very general level.

Product group Toys	**Raw material production**	**Production**	**Use**	**Disposal**
Raw materials	Solid wood/wood fibre/paper/cardboard (renewable) Adhesive (oil or bio-based) Metal (steel/iron/aluminium/brass) Plastic (oil or bio-based) Textile (wool/cotton/viscose/synthetic) Leather (renewable) Filler/stuffing materials (oil-based/feathers/down) Electronics/batteries Packaging: plastic and cardboard	Energy raw materials for drying processes for surface treatment. Resource efficiency (material choice, material use and amount of packaging)	Ability to sort packaging materials for recycling.	Reuse of toys and recycling of materials such as metal, plastic, and poss. wood. Batteries are removable.
Energy/climate	Energy raw materials for production of metal, plastic, adhesive raw materials in panels and for drying timber.	Energy raw materials for drying processes for surface treatment.	Energy consumption of electronic toys.	Energy recovery from incineration of toy.
Chemicals	Use of various chemicals to extract raw materials, to manufacture materials and to put together materials that make up the toy.	Emissions of VOC and formaldehyde from surface treatment and adhesive. Wastewater from e.g. textile dyeing, leather tanning processes.	High exposure risk. CMR substances Emissions of e.g. formaldehyde and VOC in surface treatment and filling. Treatment of textiles with flame retardants, dirt repellent coatings and biocides (distribution). Phthalates in plastic and PAH in rubber.	
Other	Sustainable forestry (biodiversity), organic cotton production. Child labour in material production.	Child labour and other social conditions in production.	Quality of play and service life have an impact on the length of the use phase.	

			The better the quality of play and the service life, the lower the overall environmental impact during use.	

Summary of MECO matrix
For many of the stated material types, resource consumption during raw material production, the ability to recover materials from a product and its packaging, and chemical exposure in the use phase are of major significance. For some materials there are also specific relevant environmental parameters associated with raw material extraction and production. The fact that many toys are rapidly replaced if the child loses interest or the product breaks means that quality of play and durability are also important for the overall environmental performance.

Toys are often manufactured outside the EU and the actual production site is therefore not always covered by EU legislation. It is therefore also considered relevant to ensure that the social conditions on the production line are in order.

5.2 RPS = Relevance, Potential and Steerability

The following is an RPS analysis for the product group Nordic Swan Ecolabelled toys. This is based on the relevant environmental impacts described in the MECO matrix and presented in the RPS table below.

Overall prioriti-sation	Area and statement of level (high – medium – low) for R, P and S	Comments
High	**Sustainable forestry – wood raw material** High R, high P, high S	High RPS for requiring certified sustainable or recycled wood raw material in solid wood and wood fibre.
	Renewable raw materials other than wood – sustainable High R, high P, medium S	Toys are associated with a certain consumption of resources and hence there is high relevance in using renewable raw materials if they offer a similar service life and quality of play. The criteria should therefore be open to more renewable/bio-based materials, such as bioplastics based on maize or sugar cane, particularly if the bio fractions are not earmarked for food and are sustainably grown. Here, the RPS is judged to be medium to high for certain renewable raw materials.
	Resource consumption for packaging High R, high P, medium S	There is considered to be a high RPS when it comes to ensuring more sustainable and resource-efficient use of resources for packaging – in the form of either requiring sustainable raw materials and the capacity for recycling, or reducing the amount of packaging. In this context, the steerability lies in using a factor for the ratio between the volume of the air and the product in the packaging. Such a factor is already used by some in the industry. It must also be possible to separate the different material types after unpacking.
	Organic cotton Medium–high R, high P, medium S	For toys with a high proportion of cotton textile, the relevance relates to the use of organic cotton. However, organic cotton makes up only a small proportion of total cotton production and, since it is not the toy manufacturers themselves who buy the cotton, the steerability is judged to be medium. The overall RPS is therefore medium to high, depending on how high a proportion is contained in the toy. A triviality limit should be set regarding when the requirement is triggered in order to adapt the relevance.

	Chemicals in toy production, use phase and disposal phase High R, high P, high S	Here, there is judged to be high relevance concerning chemicals that are harmful to health, such as CMR substances, formaldehyde, VOC, phthalates, heavy metals, fragrances, flame retardants and allergenic preservatives in binders used in materials and surface treatments, and other chemical products used in the toy. There is also a high RPS for requirements limiting the use of nanoparticles, for example in surface treatments. The RPS applies both to the production process in which the chemical is used, and to the use and disposal phases. A reduction in problematic chemicals would be relevant for all three phases. In terms of the production phase, there is particularly high relevance for textile production.
	Chemicals – specifically additives in plastic High R, medium P, medium S	Here high relevance has been identified in relation to problematic additives in plastic parts. At the same time, there is potential and medium steerability relating to the mixing of plastic granules and additives (compound). With some plastic products, additives are added to the granules themselves before they are sold on. There is also judged to be steerability here. However, steerability regarding the polymer production is low due to long supply chains. It might be a little higher for known problematic residual monomers that are covered by testing in the EU Toy Safety Directive. There is considered to be a general opportunity to increase steerability by reusing tests from the EU Toy Safety Directive.
	Types of toys High R, high P, high S	A high overall RPS was found for requirements concerning the permitted types of toys. Single-use toys have a greater environmental impact than other toys since these are disposed of after just being played with once. Toys that are liquid, that contain encapsulated liquid parts or that can be eaten may pose an increased risk of a child being exposed to harmful substances.
	Design of packaging for recycling High R, medium–high P, high S	There is considered to be a medium to high RPS when it comes to ensuring that packaging is designed to be recycled after use. It is possible to increase the recycling of materials by setting requirements concerning permitted types of material and the ability to separate different materials. The potential is judged to be medium to high, since the packaging is considered an important element in the sale of toys, particularly to private consumers and children over the age of 3. Colours and images, for example, can play a major part in the sale of a toy.
Medium	**Ensuring socially responsible production** High R, medium–high P, low–medium S	The relevance is high since production often takes place outside the EU and may be divided among several suppliers. The potential is judged to be medium to high, with low to medium steerability. It is possible to achieve acceptable and necessary steerability by making applicants responsible for ensuring that all their suppliers comply with the ILO Conventions.
	Resources – recycled raw material (plastic) with no problematic chemicals High R, high P, low S	The RPS is low to medium for requirements concerning recycled plastic. The relevance is high for toys, which are almost entirely made of plastic materials. However, there is a risk here, in that the steerability over the problematic substances that are contained in the plastic from previous life cycles is small. Since these products are for children, the potential presence of substances that are harmful to health is highly relevant. So for this parameter, the overall RPS is low to medium with regard to requiring recycled plastic where plastic raw material is used.
	Energy – material production High R, medium P, low S	High relevance has been identified in relation to energy impact from material production, including raw material extraction. Many of the ingoing materials are highly processed, with correspondingly high energy consumption. The potential for energy reduction in the production of most of the materials is, however, unclear due to the heterogeneous nature of the product group. There is generally judged to be low steerability and consequently the overall RPS is medium.
	Sustainable mining for metals High R, medium P, low S	The relevance is high here in terms of the environmental impact on the area where mining is carried out and the discharge of toxic wastewater/sludge into surrounding aquatic environments. There is also considered to be potential for environmental measures in the mining operation. The product chain is very long, which makes steerability very low. Medium RPS overall. Standardised sustainability certifications are widely awaited in the metal industry. Instead the use of metal could be restricted.

	Resources – recycled raw material (metal) High R, medium P, low–medium S	Medium RPS overall. Mining operations are associated with major environmental impacts, which makes the relevance high. The traceability of metals back along the supply chain is very low, and there are currently no certification or chain of custody systems in place. For this reason, steerability is medium to low. Recycled metals have less of an environmental impact and there is therefore potential in setting requirements concerning the proportion of recycled metal.
	Design of toys for recycling High R, medium P, high S	There is considered to be high relevance when it comes to ensuring that the design includes the possibility of recycling the materials after use. The potential is also high, but with the caveat that materials which can easily be separated might pose a challenge to the safety of toys for children under the age of 3, as there may be an increased risk of a child placing small parts in their mouth. Potential thus only exists where it does not make the toy less safe for children. Steerability is judged to be high.
Low	**Resource efficiency per functional unit - production** High R, low P, zero–low S	Since toys may comprise different types of material and have very different designs, there is in principle no definable potential to optimise the design to make it more resource-efficient, in terms of limiting the use of resources in relation to the toy's function. Low RPS overall. See instead design for recycling.
	Quality and properties High R, medium–high P, low S	A low overall RPS was found for requiring the toy to be high quality. There are no quality standards for toys and therefore a user test or standardised test would have to be performed on the specific material, e.g. textile. However, standardised testing of materials will not always be relevant for toys, and nor is it uncommon for a toy to consist of several types of material. There is thereby low steerability.
	High quality of play High R, medium P, zero–low S	It is relevant to require a high play value, as this can help to extend the life of the product. Play value is, however, quite subjective, and hard to measure – hence the very low steerability. It is usually defined in terms of toys that make a child use their imagination and creativity, make the child inquisitive and stimulate motor functions or creative ideas. Low RPS overall.

Regarding Potential – Substances that are harmful to health: Nordic Swan Ecolabel relative to EU Toy Safety Directive, see Appendix 4.

5.3 Circular economy

To support a circular economy, it is important that products are of good quality, so they can last a long time and the materials can be recycled at end of life. The chemicals used in the materials are important for the possibilities of recycling. In this context, it is essential that the content of substances that are harmful to health and the environment is as low as possible. Nordic Swan Ecolabelled toys are subject to very strict requirements concerning hazardous chemicals. In addition, the actual types of material can have an impact on the potential for recycling. Biodegradable plastic, for example, must not be used in Nordic Swan Ecolabelled toys or their packaging, as it "contaminates" the other plastic streams that go into recycled plastic in the Nordic region.

The criteria allow for the use of certain recycled or recovered materials, such as plastic, metal or textiles, in the Nordic Swan Ecolabelled toy. Where recycled or recovered materials are used in a toy, there are requirements concerning where these must originate from and/or material testing requirements to ensure that the risk of undesirable substances is low. For packaging, the requirements state that the main materials shall be recyclable, and that hard plastic and paper/cardboard packaging shall have a high proportion of recycled material.

The ability to separate the toy into different types of material so that the materials can be recycled was given due consideration in the revision, but the decision was taken not to set requirements for this. See more about the background to this in section 8 Areas without requirements.

Toys are a product area with many different materials, designs, and concepts of play. There is also a major difference in what they are put through when they are in use. Toys can thus have extremely diverse durability. It is thus difficult to set general requirements for the durability of toys that go beyond the safety requirements for physical and mechanical properties in the EU Toy Safety Directive. There are no standards for the durability or quality of toys. However, the criteria set certain requirements to promote the durability of Nordic Swan Ecolabelled toys. Single-use toys, whereby the main function can only be used once, are not eligible for the Nordic Swan Ecolabel. Furthermore, certain types of toys are subject to a requirement concerning the availability of spare parts.

5.4 UN's Sustainable Development Goals

Goal 12 "Ensure sustainable consumption and production patterns"

Nordic Swan Ecolabelled toys actively contribute to fulfilment of UN Sustainable Development Goal 12, to "Ensure sustainable consumption and production patterns".

Nordic Swan Ecolabelled toys have a reduced environmental impact and make efficient use of natural resources, in part because they are subject to requirements concerning materials in the toy. For example, there are requirements for sustainable wood raw material and traceability, requirements for sustainable raw materials for bio-based plastic, requirements regarding the use of recycled metal and a ban on types of plastic that disrupt the recycling processes.

There are also requirements that apply to the packaging for Nordic Swan Ecolabelled toys. These include requirements limiting the amount of packaging and requirements that the materials must be recyclable in existing waste recycling systems, and that cardboard and hard plastic must contain a certain amount of recycled material.

Nordic Swan Ecolabelled toys are subject to a requirement concerning spare parts for selected products to promote the durability of the toys and thus reduce their environmental impact.

The Nordic Swan Ecolabel encourages reuse and recycling without the spread of harmful chemicals. A long list of chemicals that are harmful to health and the environment are prohibited in the production of the toys. This ensures a responsible approach to chemicals during production and in the toy, with positive effects on people's health and the environment.

Goal 3 relating to hazardous chemicals and air, water and soil pollution and contamination

A long list of chemicals that are harmful to health and the environment are prohibited in the production of the toys. This ensures a responsible approach to chemicals during production and in the toy.

The result is a reduction in harmful effects from chemicals that have a impact on people's health and the environment. The stringent chemical requirements include a ban on chemicals that are classified as harmful to the environment, carcinogenic, mutagenic and reprotoxic, and requirements concerning emissions to the aquatic environment from metal coatings.

Goal 8 on decent work for all is also relevant to this product group

The global toy industry faces major social and ethical challenges. There is therefore a requirement that working conditions in the toy production must comply with relevant workers' rights as set out in the ILO Core Conventions, e.g. no child labour and no forced labour.

6 Justification of the requirements

This chapter presents proposals for new and revised requirements, as well as explaining the background to the requirements, the requirement levels, and any changes since generation 2. The appendices referred to are the appendices in the criteria document "Nordic Ecolabelling for Toys".

6.1 Product group definition

What can carry the Nordic Ecolabel?

Toys for children under the age of 14 can be Nordic Swan Ecolabelled if the toy comprises one or more of the following materials:

- Plastic, foam, silicone, and rubber
- Textiles, hide/skins, and leather
- Filler materials
- Metal
- Paper, paperboard, and cardboard
- Solid wood and bamboo
- Wood-based panels

In the case of toys for children over the age of 3, other materials (not listed above) may individually make up no more than 1% by weight of the toy and in total other materials must not exceed 2% by weight. Toys for children under the age of 3 must not contain any materials other than those covered by requirements in these criteria.

A toy is defined as a product that is exclusively or partially designed or intended for use by children under the age of 14 during play. The toy must be covered by the EU Toy Safety Directive (2009/48/EC). Typical toys that qualify for a Nordic Swan Ecolabel include rattles, teething toys and activity toys made of various materials for children under the age of 3, plus building blocks, dolls, soft toys, puzzles, spades, cars, doll's houses and train sets. Ride-on cars and balance bikes for children are eligible for the Nordic Swan Ecolabel if they are covered by the EU Toy Safety Directive.

Products not covered by the EU Toy Safety Directive cannot be Nordic Swan Ecolabelled in accordance with the toy criteria. However, if they fall within other product categories for which ecolabelling criteria are already developed, the products can be Nordic Swan Ecolabelled accordingly.

Such criteria might include Nordic Swan Ecolabelled Office and hobby supplies (writing instruments, erasers, and hobby paint) and Textiles. Notepads and drawing, colouring and children's books can be Nordic Swan Ecolabelled under the criteria for Printed matter and paper products. Activity toys (defined as toys for private use where the support structure is stationary while the activity takes place, e.g. slides, roundabouts, swings and climbing frames) are Nordic Swan Ecolabelled under the criteria for Outdoor furniture, playground and park equipment. If there is any doubt about which criteria an activity toy belongs to, contact Nordic Ecolabelling. Nordic Ecolabelling reserves the right to determine the criteria to be used for any product application. For further information, please contact the Nordic Ecolabelling organisation in the relevant country (see addresses at the beginning of the document).

What cannot carry the Nordic Swan Ecolabel?

Electronic toys, single-use toys (incl. stickers and temporary tattoos), balloons, water balloons, chemistry sets, slime toys, soap bubbles, other toys containing liquids (including encapsulated liquids) and toys with parts that could be eaten are not eligible for the Nordic Swan Ecolabel.

Hobby supplies cannot be Nordic Ecolabelled according to these criteria. Hobby materials are materials used for hobbies, crafting and pictorial art. Examples of such materials include modelling wax, finger paints, clay, plaster, and chemistry sets. See the criteria for the Nordic Swan Ecolabelling of Office and hobby supplies for details on the products that fall within their category.

Appendix 1 provides an overview of the product areas that are not regarded as toys under the EU Toy Safety Directive (2009/48/EC), including babies' soothers, fireworks, sports equipment and bicycles designed for sport or for use on public roads.

6.2 Definitions

Terms	Definition
Ingoing substances and impurities	The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the chemical product. Impurities are not regarded as ingoing substances and are exempt from the requirements. Ingoing substances and impurities are defined below, unless stated otherwise in the requirements. Ingoing substances: all substances in the chemical product, including additives (e.g. preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g. formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances. Impurities: residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the raw material/ingredient and/or in the chemical product in concentrations less than 100 ppm (0,0100 w-%, 100 mg/kg) in the chemical product. Impurities in the raw materials exceeding concentrations of 1,0 % are always regarded as ingoing substances, regardless of the concentration in the chemical product. Examples of impurities are residues of the following: residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.
Material elements	In these criteria, material elements may be "metal elements", "plastic elements", "wooden elements" and so on, plus "product elements" that might comprise multiple materials as described in the relevant section. Material element is the designation of a unique material element in the final toys. Different material elements have various supply chains or are produced differently but may be of the same material type. For example, textiles that are only distinguished by dyeing or printing by the same supplier are considered to be the same textile element.

	For example, polyester from supplier 1 is one textile element, and polyester from supplier 2 will thus be another textile element. Two different types of polyester from the same supplier will also be separate textile elements. See also the definition of “Material type”.
Material type	In these criteria, the material type may be “cotton”, “wood”, “steel”, etc. but could also be “metal”, for example. “Material type” differs from “material element” in that suppliers, supply chains and production processes are not relevant for “material type”. Here, only the type of material is relevant. Material types could e.g. be “plastic” or “metal” but could also be more specific materials within these categories, such as “bio-based plastic”, “steel” and so on. The criteria may therefore contain requirements for both material elements and material types, often with regard to when various requirements apply. See also the definition of “Material elements”.
Recycled material	Recycled material is defined in the requirement according to ISO 14021, which uses the following two categories: “**Pre-consumer/commercial**” is defined as material that is reclaimed from the waste stream during a manufacturing process. Materials that are reworked or reground, or waste that has been produced in a process, and can be recycled within the same manufacturing process that generated it, are not considered to be pre-consumer recovered material. Nordic Ecolabelling considers reworked, reground or scrap material that cannot be recycled directly in the same process, but requires reprocessing (e.g. in the form of sorting, remelting and granulating) before it can be recycled, to be pre-consumer/commercial material. This is irrespective of whether the processing is done in-house or externally. “**Post-consumer/commercial**” recycled material is defined by ISO 14021 as follows: “Post-consumer/commercial” is defined as material generated by households or commercial, industrial or institutional facilities in their role as end-users of a product that can no longer be used for its intended purpose. This includes materials from the distribution chain.
Material element/type with which the child is in contact	“Material element/type with which the child is in contact” means an element that the child might come into contact with during normal or expected use of the toy. Example of elements with which a child cannot come into contact: encapsulated elements or elements that are covered, so that it is impossible for the child to come into contact with them. All other elements that the child is able to touch are defined as elements with which the child is in contact.
Nanomaterials	The European Commission’s definition from 18 October 2011 (2011/696/EU): Nanomaterials: A natural, incidental or purposely manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for at least 50% of the particles in the number size distribution, one or more external dimensions are in the size range of 1–100 nm.

6.3 Triviality and requirement limits

The Toy product group comprises products with many different material compositions. The criteria therefore set requirements for many different materials, but normally there will only be a selection of these materials in a single product. It is therefore important to note which requirements are triggered for the individual product.

For requirement limits for materials, and for the toy, see the table below and the intro text in the relevant material section and/or requirement.

A material type that is not subject to requirements in these criteria may account for no more than 1% by weight of the toy. In total, the toy may contain a maximum of 2% by weight of material types for which there are no requirements. Toys for children under the age of 3 must not contain any material type other than those covered by requirements in these criteria.

Table: Overview of triggers for requirements in the criteria

Material or requirement type	Focus area	Req. no.	Requirement triggered by: - wt% of material type* - wt% of material element* - Children in contact with element//type* *See definition in section 6.2
Description of toy	Description of toy	O1	Applies to all toys
EU Toy Safety Directive	EU Toy Safety Directive	O2	
Fragrances/aroma compounds	Fragrances/aroma compounds	O3	
Antibacterial substances	Antibacterial substances	O4	
Nanomaterials	Nanomaterials	O5	
Adhesives used in toy	Adhesives used in toy	O6–O9	
Plastic, foam, silicone, and rubber	Information on polymer type and surface treatment	O10	Irrespective of amount
	Ban on polymer types and plastic composites	O11	
	Third-party control of test from EN 71	O12	
	Surface treatment	O13–O15	
	Recycled plastic – Use and source	O16	Child in contact with it, or over 5 wt% of material elements
	Substances added to polymer	O17–O18	
	Pigments	O19	
	Impurities in the polymer	O20	
	Silicones – D4, D5 and D6	O21	
	PAHs	O22	
	Foam – Emissions	O23	
	Foam – Emission of formamide	O24	
	Foam EVA, PUR and polystyrene – Blowing agents and isocyanate compounds	O25	
	Elastomers – Nitrosamines and nitrosatable substances	O26	
	Elastomers – 1,3-butadiene	O27	
	Bio-based polymers – Raw material	O28	Over 10 wt% of material type
Textiles, hide/skins, and leather	Third-party control of test from EN 71	O29	Irrespective of amount
	Ecolabelled textiles, hide/skins, and leather	O30	
	Oeko-Tex certified textiles, hide/skins, and leather	O31	
	Hides/skins and leather – Origin	O32	
	Textile – Formaldehyde	O33	
	Hides/skins and leather – Formaldehyde	O34	
	Hides/skins and leather – Chromium, cadmium, and lead	O35	
	Recycled textiles, hide/skins, and leather – Sources	O36	
	Halogenated flame retardants	O37	Over 5 wt% of material elements
	Chemical products – Chemical overview	O38	
	Chemical products – Classification	O39	
	Bleaching agents	O40	Over 30 wt% of material elements
	Cotton fibre	O41	Over 30 wt% of material type
	Synthetic fibre – Fossil origin	O42	

	Synthetic fibre – Bio-based origin	O43	
	Wool and other keratin fibres	O44–O45	
	Recycled fibres	O46	
Filler materials	All types	Section 6.8	Irrespective of amount, but see also description in section 6.8
	Feathers and down	O47–O48	Irrespective of amount
	Other renewable raw materials – Microbial cleanliness	O49	
	Chemical additives and treatments	O50	
Metal	Copper, tin, lead and cadmium – Ban	O51	Irrespective of amount
	Third-party control of test from EN 71	O52	
	Surface treatment	O53–O55	
	Metal coating	O56	
	Metal coating – Facility	O57	Over 5 wt% of material type
	Proportion of recycled metal	O58	Over 30 wt% of material type
Paper, paperboard, and cardboard	Third-party control of test from EN 71	O59	Irrespective of amount
	Printing and surface treatment	O60–O62	
	Fibre raw materials	O63–O64	Over 10 wt% of material type
Solid wood and bamboo	Third-party control of test from EN 71	O65	Irrespective of amount
	Tree species	O66	
	Recycled parts	O67	
	Surface treatment	O68–O70	
	Traceability and certification	O71	Over 10 wt% of material type
Wood-based panels	Third-party control of test from EN 71	O72	Irrespective of amount
	Surface treatment	O73	
	Tree species	O74	
	Chemical products – Panel production	O75–O77	Over 5 wt% of material elements
	Formaldehyde	O78	
	Traceability and certification	O79	Over 10 wt% of material type
Spare parts	Spare parts	O80	Applies to: - Toys designed to carry a child's weight and that have moving parts - Toys sold to institutions, comprising individual parts that are necessary for the function or the original play concept
Packaging	Volume	O81	Applies to all toys
	Plastic types – Ban	O82	
	Recyclability and recycled materials	O83	
	Design for recycling	O84	
	Information on sorting for recycling	O85	
Transport and storage	Transport and storage	O86	Applies to all toys
Social and ethical requirements	Social and ethical requirements	O87	Applies to all toys
Procedure and controls	Procedure and controls	O88–O95	Applies to all toys

6.4 Description of the toy product

The toy products, material composition, manufacturing process, suppliers, etc. must be described to aid the assessment of which requirements need to be met.

O1 Description of toy

The applicant must submit the following information about each toy:

- **State product type**, trade name(s) and age group at which the toy is aimed.

  Only toys covered by the product group definition described in section 6.1 may obtain a licence.

  Toys whose main function can only be used once are not eligible for the Nordic Swan Ecolabel.
- **Where the products are to be sold** (to institutions or private consumers, physical stores, online stores, etc.).
- **Illustrations** or photos of the product.
- **Overview of materials and composition:** Overview of all ingoing material types (e.g. wood, plastic, rubber, textile, foam, adhesive, etc.), including the following information for each material element:
  a) Trade name/item number and material type.
  b) Supplier of the material.
  c) Weight in g of the material in the finished toy.
  d) % by weight of the material in the finished toy.
  e) Whether the material has a surface treatment.
  f) How the material is used in the toy (function, location and whether a child might come into contact with the material during normal or expected use of the toy).
- **Description of the manufacturing process** for the toy. Suppliers must be described with the company name, production site, contact person and the production processes performed, e.g. textile dyeing or metal coating. Form in Appendix 3 may be used.
- The production and supply chain can be described using a flow chart, for example as shown in Appendix 4.

A material type that is not subject to requirements in these criteria may account for no more than 1% by weight of the toy. In total, the toy may contain a maximum of 2% by weight of material types for which there are no requirements. Toys for children under the age of 3 must not contain any material type other than those covered by requirements in these criteria.

See the definition of material type and material element in section 6.2.

✉ Description and photos/drawings of the products covered by the application, as set out above.

✉ Overview of the materials, which must include the information required above. Form in Appendix 3 may be used.

✉ Declaration from the applicant that the toy meets the product group definition in section 6.1.

✉ Description of the toy's function, demonstrating that it is not a single-use product.

✉ Submit a description of the production chain and the production processes (preferably in a flow chart), and state which suppliers perform each process. See the example in Appendix 4.

✉ Submit an overview of production processes with information on the type of process, the company name, production location and contact person for each process performed. See the example in Appendix 4.

Background to the requirement

The wording of the requirement has been changed in this generation of the criteria, and single-use toys have been excluded from the product group.

Toys must be covered by the EU Toy Safety Directive (2009/48/EC).

Nordic Ecolabelling does not wish to promote the use of toys that can only be used once and are then discarded. The total environmental impact of toys depends, in part, on how long they remain in use. Toys whose main function can only be used once are therefore not eligible for the Nordic Swan Ecolabel. The criteria for the Nordic Swan Ecolabelling of Toys should instead encourage products that fit into a circular economy. Here, the focus is on a long use phase and materials that we wish to recycle.

To gain an overview of the toys to be ecolabelled and of the production chain, the applicant is required to provide information concerning the product, including trade name, production site, overview of production processes and suppliers, and where the products are to be sold.

It is also required that the product shall be described, and the material composition be stated. This is important to be able to assess which requirements in the criteria are triggered and must thereby be documented for the individual toy product.

6.5 General requirements – applicable to all toys

Requirements in this section must be met by all types of toys, irrespective of their materials or amounts thereof.

6.5.1 EU Toy Safety Directive

O2 EU Toy Safety Directive

The toy must meet the CE marking requirements set out in the EU Toy Safety Directive (2009/48/EC). This can be documented, among others, by submitting an EC declaration of conformity for each toy. Note that if the toy is for children under the age of 3 or is intended to be placed in the mouth, it must also comply with Appendix C of the EU Toy Directive (2009/48/EC), which is amended on an ongoing basis[8].

The toy must also meet the safety requirements in EN 71-1 Mechanical and physical properties and EN 71-2 Flammability, as well as other relevant safety requirements in the EN 71 series (see relevant material requirements in these criteria).

In addition, the toy must meet any other national and European statutory requirements, such as REACH and the associated restrictions on specific chemicals.

✉ EC declaration of conformity see description in Annex III to the EU Toy Safety Directive (2009/48/EC), for each toy product.

[8] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

✉ Test report in accordance with EN 71-1 and EN 71-2, showing fulfilment of the requirement. Plus, declaration from the test laboratory confirming conformity with the requirements in EN 71-1 and EN 71-2 for the types of toys for which the application is being made. The analysis laboratory must meet the requirements in Appendix 2.
✉ Declaration from the applicant that the toy complies with all European and any national statutory requirements in the countries in which the toy will be sold.

Background to the requirement
The wording of the requirement text has been amended, but otherwise the requirement remains unchanged in this generation of the criteria.

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[9], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations.

In addition to this requirement, these criteria also ask for relevant test reports in line with the safety requirements in the EN 71 standards under subsequent requirements for the different materials.

6.5.2 Perfume, antibacterial substances, and nanomaterials

O3 Perfume/fragrances

Perfume/fragrances must not be added to the toy or to the ingoing materials in the toy.

✉ Declaration from the toy manufacturer that the requirement is fulfilled.
✉ Declaration from the suppliers of the different materials that the requirement is fulfilled.

Background to the requirement
The requirement is identical to the previous generation of the criteria.

Perfume and other fragrances from sources such as essential oils may contain a number of allergens or carcinogenic substances. To avoid unnecessary health effects from this type of substance the use of perfume and other fragrances is prohibited.

O4 Antibacterial substances

Chemical products and nanomaterials* with antibacterial or disinfectant properties must not be added to the finished toy.

Antibacterial refers to chemical products that inhibit or stop the growth of microorganisms such as bacteria or fungi. Silver ions, nano silver, nano gold, and nano copper are considered antibacterial substances.

Furthermore, no claims may be made about any antibacterial effect in conjunction with the marketing of the toy, even if the effect is naturally inherent in the material (e.g. bamboo).

** The definition of nanomaterial follows the European Commission's definition of nanomaterial of 18 October 2011 (2011/696/EU), see definition in section 6.2.*

✉ Declaration from the toy manufacturer that the requirement is fulfilled.

[9] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

Background to the requirement
The requirement is new in this generation of the criteria.

Antibacterial or disinfectant properties are not desirable in ecolabelled products. Nordic Ecolabelling has therefore introduced a requirement prohibiting the addition of chemical products and nanomaterials with antibacterial or disinfectant properties to the finished toy. These substances are increasingly being added to consumer products – everything from textiles to toys and kitchen equipment. There has been a particular concern that emissions of nano silver into wastewater and other dispersal could eliminate desirable bacteria and cause resistance in bacteria. Another example of antibacterial substances that must not be used are organotin compounds and chlorophenols, which are used, for example, during the transport and storage of textiles.

Preservatives used in chemical raw materials ("in can" preservatives), for example in adhesives or surface treatments, are not subject to this prohibition. Here, the purpose of the biocide is to preserve the chemical product during storage. Naturally occurring antibacterial effects in materials (e.g. bamboo) are permitted in Nordic Swan Ecolabelled toys.

Furthermore, there is a requirement prohibiting claims about any antibacterial effect in conjunction with the marketing of the toy, even if the effect is naturally inherent in the material (e.g. bamboo). The requirement has been set because Nordic Ecolabelling does not wish to encourage a trend towards toys with antibacterial properties, since this can lead to bacterial resistance and in any case is unnecessary for toys, since general cleaning of toys is sufficient. Annex II section V of the EU Toy Safety Directive (2009/48/EC) states that toys must be designed and manufactured in such a way as to meet hygiene and cleanliness requirements in order to avoid risk of infection, sickness or contamination. In addition, a toy intended for use by children under 36 months must be designed and manufactured in such a way that it can be cleaned.

Hygiene measures beyond those required by the EU Toy Safety Directive are not necessary, and Nordic Ecolabelling does not wish to contribute to any trend for antibacterial effects in toys, hence the introduction of a ban on claims in this respect.

O5 Nanomateriale

The chemical product must not have nanomaterials* as ingoing substances[1]. Exemptions are made for:

- Pigments. This exemption does not include pigments added for other purposes than imparting colour.
- Naturally occurring inorganic fillers**
- Synthetic amorphous silica***

** In accordance with the definition of a nanomaterial adopted by the European Commission on 18 October 2011 (2011/696/EU), see definition in 6.2.*

*** This applies to fillers covered by Annex V item 7 of REACH.*

**** This applies to traditional synthetic amorphous silica.*

[1] See the definition of ingoing substances in section 6.2.

✉ Declaration from the toy manufacturer that the requirement is fulfilled.

☒ Declaration from suppliers of the different materials that the requirement is fulfilled (see relevant appendix under each material section).

Background to the requirement

The requirement is adjusted in this generation of the criteria.
Due to their small size and large surface area nanoparticles are usually more reactive and may have other properties compared to larger particles of the same material. There is concern among public authorities, scientists, environmental organisations and others about the lack of knowledge regarding the potential detrimental effects on health and the environment.[10],[11],[12],[13],[14],[15],[16],[17],[18]

Surface coatings and other modifications can also alter their properties. Nordic Ecolabelling takes the concerns about nanomaterials seriously and applies the precautionary principle to exclude nanomaterials/-particles in the products. The European Commission recommendation for a definition of nanomaterials of 18 October 2011 (2011/696/EU)[19] is used.

Most nanomaterials on the market today have either been in use for decades, or are more recently enginereed nanoforms of previously existing materials.[20] For example, nanoparticles of carbon black and amorphous silica (SiO2) have been used for the last century.

[10] UNEP (2017) Frontiers 2017 Emerging Issues of Environmental Concern. United Nations Environment Programme, Nairobi. https://wedocs.unep.org/bitstream/handle/20.500.11822/22255/Frontiers_2017_EN.pdf?sequence=1&isAllowed=y
[11] Parliamentary Assembly of the Council of Europe (2017 (2013)) Nanotechnology: balancing benefits and risks to public health and the environment. http://semantic-pace.net/tools/pdf.aspx?doc=aHR0cDovL2Fzc2VtYmx5LmNvZS5pbnQvbncveG1sL1hSZWYvWDJILURXLWV4dHIuYXNwP2ZpbGVpZD0xOTczMCZsYW5nPUVO&xsl=aHR0cDovL3NlbWFudGljcGFjZS5uZXQvWHNsdC9QZGYvWFJlZi1XRC1BVC1YTUwyUERGLnhzbA==&xsltparams=ZmlsZWlkPTE5NzMw
[12] Larsen PB, Mørck TAa, Andersen DN, Hougard KS (2020) A critical review of studies on the reproductive and developmental toxicity of nanomaterials. European Chemicals Agency.
[13] SCCS (Scientific Committee on Consumer Safety) (2019) Guidance on the Safety Assessment of Nanomaterials in Cosmetics. SCCS/1611/19. https://ec.europa.eu/health/sites/health/files/scientific_committees/consumer_safety/docs/sccs_o_233.pdf
[14] Mackevica A, Foss Hansen S (2016) Release of nanomaterials from solid nanocomposites and consumer exposure assessment - a forward-looking review. Nanotoxicology 10(6):641–53. doi: 10.3109/17435390.2015.1132346
[15] BEUC – The European Consumer Organisation et. al (2014) European NGOs position paper on the Regulation of nanomaterials. www.beuc.eu/publications/beuc-x-2014-024_sma_nano_position_paper_caracal_final_clean.pdf
[16] SweNanoSafe. Nationell plattform för nanosäkerhet. https://swenanosafe.se/ (2020-05-06)
[17] BEUC – The European Consumer Organisation. Nanotechnology. www.beuc.eu/safety/nanotechnology (2020-05-06)
[18] Azolay D and Tuncak B (2014) Managing the unseen – opportunities and challenges with nanotechnology. Swedish Society for Nature Conservation. www.naturskyddsforeningen.se/sites/default/files/dokument-media/rapporter/Rapport-Nano.pdf
[19] https://eur-lex.europa.eu/legal-content/SV/TXT/PDF/?uri=CELEX:32011H0696&from=EN
[20] EU observatory for nanomaterials and European Chemicals Agency (2019) What are next generation nanomaterials and why are regulators interested in them? Information note. https://euon.echa.europa.eu/documents/23168237/24095696/190919_background_note_next_gen_materials_en.pdf/b9178324-5a69-2e4b-1f2b-aac2c2845f45

Titanium dioxide, TiO2, has long been used as a colourant in the bulk form, but is now manufactured as nanomaterial for other purposes.[21] Other types of engineered nanomaterials are expected to come onto the market in the future.[22]

However, there are nanomaterials that are not considered problematic. Therefore, the requirement has the following exceptions:

Pigments
Pigments are finely ground, insoluble particles that are used to give products a specific colour. There are no substitutes that can fulfil pigments' function as colourants in paints, ink, textile dye, masterbatch etc. and many pigments consist partly or entirely of nanoparticles. Thus, nano-sized pigments are exempted. Although clear evidence-based conclusions of the safety of nano-pigments cannot be drawn,[23] the release by weathering of facades is very limited, and the nanoparticles are most likely mainly embedded in the paint matrix rather than released as single nanoparticles.[24],[25]

Pigments impart colour by selective absorption and scattering of light. Paint pigments consist of particles of individual crystals up to aggregates of multiple crystals.[26] It is generally more efficient to use pigments with smaller particles than larger ones to obtain the same colour.

Inorganic pigments used in the paint industry that may occur in nano-size include carbon black and iron oxides.[27]

The carbon black used in paint is very finely ground and has a particle size of around 10–30 nm.[28] Iron oxide pigment may entirely comprise particles of nano size, or only a fraction of the particles may be nano. Inorganic nano pigments are also added to products for a wide range of purposes other than colouring. Nano-titanium dioxide is for example used to impart self-cleaning effect in paints.

[21] European commission, COMMISSION STAFF WORKING PAPER, Types and uses of nanomaterials, including safety aspects, Accompanying the [..] second regulatory review of nanomaterials, SWD(2012) 288 final
[22] EU observatory for nanomaterials and European Chemicals Agency (2019) What are next generation nanomaterials and why are regulators interested in them? Information note. https://euon.echa.europa.eu/documents/23168237/24095696/190919_background_note_next_gen_materials_en.pdf/b9178324-5a69-2e4b-1f2b-aac2c2845f45
[23] Hynes J, Novotný T, Nic M, Kocurkova L, Prichystalová R, Brzicová T, Bernatikova S (2018) Literature study on the uses and risks of nanomaterials as pigments in the European Union. European Chemicals Agency.
[24] Mackevica A, Hansen, SF (2016) Release of nanomaterials from solid nanocomposites and consumer exposure assessment – a forward-looking review. Nanotoxicology, 10(6), 641–653. https://doi.org/10.3109/17435390.2015.1132346
[25] Nowack B, Hincapié I, Sarret G, Larue C, Legros S (2013) Environmental fate of nanoparticles from façade coatings. NanoHouse Dissemination report Nº 2013-03. https:// DOI: 10.13140/2.1.2206.3040
[26] Coatings Handbook; Thomas Brock, Michael Groteklaes, Peter Mischke; 2000
[27] Industrial Organic Pigments; W. Herbst, K. Hunger; Third edition 2004; pp. 120–124
[28] Coatings Handbook; Thomas Brock, Michael Groteklaes, Peter Mischke; 2000; p. 128

Naturally occurring inorganic fillers

Traditional fillers are permitted.

Naturally occurring fillers from for example chalk, marble, dolomite and lime are exempted from registration according to appendix V, point 7 in REACH, see below, as long as these fillers only are physically processed (milled, sieved and so on) and not chemically modified. They are also exempted from registration in the Danish Environmental Protection Agency's draft to the Order on a register of mixtures and articles that contain nanomaterials and the requirement for producers and importers to report to the register.[29]

In REACH directive (1907/2006/EF30) it is in article 2, point 2, point 7b:

"The following shall be exempted from Titles II, V and VI:
(Title II covers the registration of substances, Title V covers downstream user and Title VI covers evaluation)
(b) substances covered by Annex V, as registration is deemed inappropriate or unnecessary for these substances and their exemption from these Titles does not prejudice the objectives of this Regulation;"

Annex V Exemptions from the obligation to register in accordance with article 2(7)(b):
"The following substances which occur in nature, if they are not chemically modified.
Minerals, ores, ore concentrates, cement clinker, natural gas, liquefied petroleum gas, natural gas condensate, process gases and components thereof, crude oil, coal, coke."

An exemption has been added for inorganic fillers as long as they are covered by appendix V, point 7 in REACH.

Synthetic amorphous silica
Synthetic amorphous silica (SAS) is an intentionally manufactured silicon dioxide (SiO2) form that has been used in industrial, consumer and pharmaceutical products for decades.[31]

SAS is a nanomaterial, under the European Commission definition[32] and is exempted from the requirement due to a lack of alternative substances.

[29] Link to Miljøstyrelsens consultation: http://hoeringsportalen.dk/Hearing/Details/16910 (visited 20/1-14)
[30] Link to REACH-directive: http://eur-lex.europa.eu/LexUriServ/site/en/oj/2006/l_396/l_39620061230en00010849.pdf
[31] https://www.asasp.eu/images/Publications/Nano_-_SAS_factsheet_-_201209.pdf
[32] COMMISSION RECOMMENDATION of 18 October 2011 on the definition of nanomaterial (2011/696/EU)

Polymer dispersion
Polymer dispersions can technically be considered nanomaterials: The EU Commission's follow-up report to the other "Regulatory Review on Nanomaterials" from 2012[33] states that solid nanomaterials dispersed in a liquid phase (colloid) should be considered nanomaterials according to the EU Commission recommendation. Polymer dispersions are not exempt from the requirement as they are not considered relevant for toys.

6.5.3 Adhesives used in toy

The requirements in this section refer to adhesives used to glue the elements of the toy together.

Adhesives used in the production of materials in the toy, such as wood-based panels, must instead meet the chemical requirements for the relevant material, as set out in these criteria.

O6 Classification of adhesives

Adhesives used to glue the elements of the toy together must not have any classification listed in the table below.

Adhesives used in the production of materials in the toy, such as wood-based panels, must instead meet the chemical requirements for the relevant material, as set out in these criteria.

Table: List of non-permitted classifications of adhesives

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic acute 1 Aquatic chronic 1 Aquatic chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3 Acute Tox. 4 Acute Tox. 4 Acute Tox. 4	H300 H310 H330 H301 H311 H331 H302 H312 H332
Specific target organ toxicity	STOT SE 1 STOT RE 1 STOT RE 2 STOT SE 2	H370 H372 H371 H373
Sensitising (allergenic)	Resp. sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317

[33] Communication from the commission to the european parliament, the council and the european economic and social committee, Second Regulatory Review on Nanomaterials, COM(2012) 572 final

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

✉ Safety data sheet compliance with current European legislation.
✉ Declaration from the adhesive manufacturer/supplier showing that the requirement is fulfilled.

Background to the requirement

The requirement has been changed in this generation of the criteria.

The requirement is included to ensure that the toy contains no adhesives classified as harmful to health or the environment. Adhesives may be used to glue many different material types in toys. Since the previous generation of the criteria, the hazard statement "Acute toxicity" has been expanded to now also prohibit classifications H302, H312 and H332, the hazard statement "Specific target organ toxicity" has been expanded to include H371 and H373, and "Toxic for reproduction" now includes H362. "Hazardous to the ozone layer" EUH 059 has been replaced by H420. "Harmful to aquatic life" H412 and H413 have been removed.

O7 CMR substances in adhesives

The requirement covers ingoing substances[1] in adhesives.

Ingoing substances in additives must not have any classification listed in the table below.

Exemptions from the requirement:

Formaldehyde as an impurity in newly produced polymers is exempted, see instead the separate formaldehyde requirement O9.

[1] *See the definition of ingoing substances in section 6.2.*

Table: List of non-permitted classifications of ingoing substances in additives

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

✉ Declaration from the adhesive manufacturer/supplier showing that the requirement is fulfilled.

Background to the requirement

In comparison with the earlier generation of the criteria, the requirement has been expanded to also prohibit substances classified as Lact. H362. The requirement has also been tightened such that the CMR substances must not actively be added in any amount.

The requirement has been included to ensure that no carcinogenic, mutagenic and reprotoxic substances (CMR substances) are added to the adhesive. This is relevant with regard to the child's exposure to the adhesive and employees' exposure during production of the toy.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be put in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[34], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations. This requirement O7 covers the following substances for which there are requirements in Appendix C as of March 2020:

- Directive (EU) 2015/2115 concerning Formamide:
  Formamide is classified as H360. See also requirement O24.
- Directive (EU) 2017/774 concerning Phenol:
  Phenol classifications include H341. See also requirement O20.
- Directive (EU) 2017/898 concerning Bisphenol A:
  Bisphenol A classifications include H360. See also requirements O8 and O20.
- Directive (EU) 2019/1929 concerning Formaldehyde:
  Formaldehyde classifications include H350 and H341. See also requirements O9, O20, O23, O33, O34 and O78.

O8 Prohibited substances in adhesives

The requirement covers adhesives used in toys.

The following substances must not be present[1] in additives in the adhesive:

- Substances on the EU's Candidate List in accordance with REACH, 1907/2006/EC, article 59, section 10 on the European Chemicals Agency (ECHA) website.
- Substances that are assessed by the EU to be PBT substances (persistent, bioaccumulative and toxic substances) or vPvB substances (very persistent and very bioaccumulative) in accordance with the criteria in Annex XIII of REACH.
- Substances that are considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. The list can be found here:
  http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf

In addition, the following substances and substance groups must not be present[1]. There may be overlaps between the substances on the following item list and the substances or groups of substances of which the properties are listed above:

- Halogenated organic compounds[2] (e.g. organic chloroparaffins, fluorine compounds, halogenated flame retardants, chlorophenols, etc.). The following are exempted:
  - Bronopol up to 0.05 wt%
  - The blend (3:1) of CMIT/MIT (5-chloro-2-methyl-4-isothiazolin-3-one; 2-methyl-4-isothiazolin-3-one) up to 0.0015 wt%
  - IPBC (iodopropynyl butylcarbamate) up to 0.20 wt%

[34] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

- Isothiazolinones (total) at more than 0.0200 wt%
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates or other alkylphenol derivatives[3]
- Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)
- Phthalates[4]
- Pigments and additives based on lead, tin, cadmium, chromium (VI), mercury, antimony, arsenic and their compounds
- Volatile aromatic hydrocarbons (VAH)[5]
- Volatile aromatic compounds (VOC) at more than 3 wt%[6]

[1] *See the definition of ingoing substances in section 6.2.*

[2] *Be aware of national legislation concerning PFOA if the product is to be sold/marketed in Norway. In Norway, PFOA is governed by the "Regulation on restrictions to the use of health- and environmentally hazardous chemicals and other products (Product Regulations)", Section 2-32.*

[3] *Alkylphenol derivatives are defined as substances released from alkylphenols on degradation.*

[4] *Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).*

[5] *Volatile aromatic hydrocarbons (VAH) are defined as aromatic compounds whose boiling point is max 250°C, measured at a standard pressure of 101.3 kPa.*

[6] *Volatile organic compounds (VOC) are defined as organic substances with an initial boiling point of max 250°C measured at a standard pressure of 101.3 kPa.*

✉ Declaration from the adhesive manufacturer/supplier showing that the requirement is fulfilled.

Background to the requirement

The requirement has been changed in this generation of the criteria:

- The specific ban on PFOA (perfluorooctanoic acid and salts/esters thereof) and PFOS (perfluorooctane sulphonate and compounds thereof) has been removed. PFOA and PFOS remain prohibited but are covered by the ban on halogenated organic compounds.
- The specific ban on the biocides chlorophenols (their salts and esters) and dimethyl fumarate has been removed. Chlorophenols are a fungicide used to combat fungal growth on wood. Chlorophenols (their salts and esters) are still prohibited but are covered by the ban on halogenated organic compounds.
  Dimethyl fumarate (DMF) is a mould and fungus killing agent that can be used to protect furniture or shoes, for example on long journeys.
  DMF can cause serious allergic reactions and is currently regulated in the EU through a ban on imports and sales of goods that contain over 0.1 mg/kg or where DMF has been declared[35]. Chlorophenols and DMF are also prohibited in the section on transport of toys and semi-manufactures.
- The specific ban on aziridine and polyaziridines has been removed. However, these remain prohibited. Aziridine and polyaziridines are, for example, classified as H350 (carcinogenic) and H340 (mutagenic), and thus are covered by the ban on CMR substances (carcinogenic, mutagenic and reprotoxic).
- Bisphenol A, bisphenol S, bisphenol F, butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA) have been added to the list of prohibited substances.

[35] https://www.retsinformation.dk/Forms/R0710.aspx?id=124428#Not1

- The ban on phthalates has been further tightened. The requirement was previously limited to phthalates in Annex XVII of the REACH Regulation. The purpose of the tightening is to restrict other phthalates with the same general phthalate structure (ortho-phthalates), which may have similar properties to the previously restricted phthalates, but whose endocrine disrupting properties have not yet been assessed.
- The heavy metals antimony and arsenic have been added to the requirement concerning pigments and additives.
- The requirement limits for volatile aromatic hydrocarbons (VAH) and volatile organic compounds (VOC) have been tightened. The requirement concerning volatile organic compounds (VOC) in adhesives remains unchanged in this generation of the criteria.

Substance lists:

SVHC substances on the EU Candidate List
The requirement has been expanded to include a ban on the use of Substances of Very High Concern (SVHC) on the Candidate List in the chemical composition. Article 57 of REACH defines the criteria used for assessing substances as Substances of Very High Concern (SVHC). The link to the list is here: http://echa.europa.eu/sv/candidate-list-table.

PBT substances and vPvB substances
PBT substances are Persistent, Bioaccumulative and Toxic. vPvB substances are very Persistent and very Bioaccumulative. These substances are prohibited because they have persistently harmful effects on the environment.

Endocrine disrupting chemicals
Human exposure to endocrine disrupting chemicals gives grounds for special concern. The requirement refers to the EU's priority list of substances for further investigation of endocrine disrupting effects in category 1 or 2*.

Halogenated organic compounds
Halogenated organic compounds (compounds of chlorine, bromine, fluorine or iodine) include many substances harmful to health and the environment, that are very toxic to aquatic life, carcinogenic or harmful to health in other ways. Halogenated organic compounds have low degradability in the environment, which increases the risk of harmful effects from the substances.
Halogenated organic compounds include among others chloroparaffins, halogenated flame retardants, per- and polyfluorinated compounds (PFC) and chlorinated organophosphates.

Chloroparaffins are a group of substances used as plasticisers and flame retardants in plastic and rubber. Chloroparaffins are not firmly bound to the plastic, which means that they might slowly be released from the product, for example due to touch and evaporation.

Chlorinated organophosphates are a group of compounds used as flame retardants and as plasticizers. Nowadays, there is an increased concern for organophosphate-based flame retardants (OPFR) due to high production and use in connection with the phasing and the strict regulation of the use of brominated flame retardants.

Chlorinated organophosphates are added additively, which means that it is not chemically bound and thus the likelihood is that they are released to the environment. Chlorinated organophosphates such as TCEP (CAS: 115-96-8), TCPP (CAS: 13674-84-5) and TDCP (CAS: 13674-87-8) decompose slowly in nature and are suspected to be carcinogenic and thus banned.

Isothiazolinones
Isothiazolinones are used as preservatives in liquid products such as adhesives and paints. The most used isothiazolinones include 1,2-benzisothiazol-3(2H)-one (BIT), 5-chloro-2-methyl-isothiazolin-3(2H)-one (CMI) and 2-methylisothiazolin-3(2H)-one (MI). These preservatives are classified as allergenic and environmentally harmful.

Bisphenol A, Bisphenol F and Bisphenol S
Bisphenol A (BPA) is on the Candidate List for Substances of Very High Concern (SVHC) and is classified as reprotoxic H360. Bisphenol A is used, for example, in the following relevant areas and products: Various plastic and epoxy mixes, paints, varnishes, adhesives (binder, hardener) and polyol for the production of polyurethane. Bisphenol A may be released into the environment from the production process, and the substance has certain endocrine effects in both fish and snails. The main source of terrestrial exposure is the spreading of sludge from wastewater treatment plants. Since bisphenol A has certain endocrine disrupting effects in animal trials, the use of this substance is prohibited in these criteria. Studies show that bisphenol S (BPS) and bisphenol F (BPF) are just as hormonally active as bisphenol A (BPA) and have endocrine disrupting effects.[36]

Alkylphenols, alkylphenol ethoxylates and other alkylphenol derivatives
Alkylphenol ethoxylates (APEO) and alkylphenol derivatives, i.e. substances that release alkylphenols on degradation.

APEOs are sometimes found in binders, dispersants, thickeners and so on. APEOs have a number of problematic properties relating to health and the environment.

APEOs are not readily biodegradable, they have a tendency to bioaccumulate, and they are found in high concentrations in wastewater sludge.

The degradation products of APEO, alkylphenol and APEO with one or two ethoxy groups are very toxic to aquatic life. Some alkylphenols are suspected of being endocrine disruptors. Alkylphenols and Bisphenol A are among the more potent chemicals with oestrogen effects that may occur in wastewater.

Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)
BHT and BHA are antioxidants and are used in many different products to protect materials such as plastics, polymers, paints, adhesives, and coatings.

BHT and BHA do not have an official harmonized classification and are not on the EU list of suspected endocrine disruptors.

[36] Bisphenol S and bisphenol F: A Systematic Review and Comparison of the Hormonal Activity of Bisphenol A Substitutes. Rochester, J.P and Bolden, A.L, Environmental Health Perspectives, 5. March 2015.

However, BHT is suspected to be endocrine disruptor even though it is not on the EU list. BHT and BHA are often self-classified as environmentally hazardous with H410 and H400, a few even as CMR.[37] BHT is on the EU CoRAP (Community rolling action plan) list because of potential hormone disruptive effects and widespread use,[38] which means that "a Member State has evaluated or will evaluate it over the coming years". BHT is on the list. BHT is also on ChemSec's SIN list due to endocrine disrupting effects.[39]

Phthalates
Phthalates are mainly used as softeners for PVC, but can also be used as stabilisers, film formers, emulsifiers, lubricants, binders and many other functions, which means that they end up occurring in numerous products such as adhesives, personal care products (e.g. denaturing products for perfume spirit), toys, packaging and much more. Some phthalates are on the EU's Priority List of substances that require further investigation for endocrine disrupting effects – and some have already been shown to have endocrine disrupting effects.

Heavy metals
Heavy metals are harmful to health and have a negative impact on the environment. This makes it relevant to ensure that raw materials used in the product group do not contain the heavy metals lead, cadmium, chromium (VI), mercury, antimony and arsenic, and their compounds.

Lead is a toxic heavy metal that is accumulated in nature and in human beings. This means that even small quantities of lead can be harmful to health.

Cadmium and cadmium compounds are acutely and chronically toxic for human beings and animals. Most cadmium compounds are also carcinogenic.

Chromium (III) and chromium (VI) are used for e.g. chrome plating, paints, and pigments. Chromium (III) is essential, since living organisms require chromium. The different types of chromium have different effects. All chromium compounds are toxic. Chromium (VI) has particularly harmful effects, as it is carcinogenic and allergenic.

Mercury occurs as inorganic and organic chemical compounds and is one of the most dangerous environmental toxins. Mercury is a threat to the environment and to human health. The organic mercury compounds are particularly toxic. Mercury compounds are extremely toxic to aquatic life and to mammals.

Antimony is harmful to health (H351 and H373) and arsenic is toxic and environmentally harmful (H301, H331, H400 and H410).

Volatile aromatic hydrocarbons (VAH)
Volatile aromatic hydrocarbons (VAH) have harmful effects on health and the environment and may cause damage to DNA.

[37] https://www.echa.europa.eu/fi/web/guest/brief-profile/-/briefprofile/100.004.439.
[38] https://echa.europa.eu/sv/information-on-chemicals/evaluation/community-rolling-action-plan/corap-table/-/dislist/details/0b0236e180b8839d.
[39] http://sinlist.chemsec.org/chemical/128-37-0 https://www2.mst.dk/Udgiv/publications/2013/06/978-87-93026-22-3.pdf

Volatile organic compounds in which one or several benzene rings are included are called volatile aromatic hydrocarbons (VAH), and are very stable. The expression “aromatic hydrocarbons” describes, among other things, benzene, toluene, mixed xylenes, orthoxylene, paraxylene and metaxylene (commonly known as BTX). Benzene is used to make styrene, cumene and cyclohexane. Most toluene is used to make benzene, phenol, and toluene diisocyanate.

Volatile organic compounds (VOC)
The requirement concerning volatile organic compounds (VOC) has been amended in this generation of the criteria. The requirement limit has been changed from 130 g VOC/l to 80 g VOC/l. The level of 80 g VOC/l is identical with the requirement concerning single-component specialist surface treatments and two-component specialist surface treatments in the criteria for Nordic Swan Ecolabelled Indoor paints and varnishes (generation 3) and the EU Ecolabel for Indoor and outdoor paints and varnishes (version 2014).

The requirement in relation to the EU Toy Safety Directive – Appendix C
Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[40], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations. This requirement O8 covers the following substances for which there are requirements in Appendix C as of March 2020:

- Directive 2014/79/EU concerning TCEP, TCPP and TDCP:
  The flame retardants TCEP (tris(2-chloroethyl)phosphate), TDCP (tris(2-chloro-1-(chloromethyl)ethyl)phosphate) and TCPP (tris(2-chloro-1-methyl)phosphate) are limited in the directive to 5 mg/kg each in toys[41].
  TCEP is classified as Carcinogenic Category 2 and Reprotoxic Category 1B. TDCP is classified as Carcinogenic Category 2. TCPP is not classified, but there are concerns that it may be carcinogenic. TCEP, TDCP and TCPP are halogenated flame retardants.[42] This requirement prohibits TCEP, TCPP and TDCP under the ban on halogenated organic compounds.
- Directive (EU) 2015/2116 concerning BIT:
  1,2-benzisothiazol-3(2H)-one (BIT) is used as a preservative in water-based toys. The directive limits BIT to 5 mg/kg in water-based toy materials. Water-based toys are not permitted in these criteria. There is also a requirement in these criteria that limits the amount of isothiazolinones in chemical products used in the manufacture of the Nordic Swan Ecolabelled toy. Isothiazolinones can be found in chemical products such as adhesives, varnishes, and paints.
- Directive (EU) 2015/2117 concerning CMI/ MI, CMI and MI:
  5-chloro-2-methyl-isothiazolin-3(2H)-one (CMI) and 2-methylisothiazolin-3(2H)-one (MI) in a ratio of 3:1 (CAS no. 55965-84-9) (3) and the separate components CMI (CAS no. 26172-55-4) and MI (CAS no. 2682-20-4) are used as preservatives in water-based toys. The directive limits CMI/MI to 1 mg/kg, CMI to 0.75 mg/kg and MI to 0.25 mg/kg, all in water-based toy materials.

[40] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en
[41] https://eur-lex.europa.eu/legal-content/DA/TXT/PDF/?uri=CELEX:32014L0079&from=EN
[42] https://eur-lex.europa.eu/legal-content/DA/TXT/PDF/?uri=CELEX:32014L0079&from=EN

Water-based toys are not permitted in these criteria. There are also requirements in these criteria prohibiting halogenated organic compounds and limiting the amount of CMI/MI and isothiazolinones in chemical products used in the manufacture of the Nordic Swan Ecolabelled toy. Isothiazolinones can be found in chemical products such as adhesives, varnishes, and paints.

- Directive (EU) 2017/898 concerning Bisphenol A:
  Bisphenol A is directly prohibited in this requirement and is also on the EU's Candidate List. See also requirement O20.

O9 Formaldehyde in adhesives

Formaldehyde shall not be included[1] in the adhesive used, with the exception of formaldehyde generated during the production process.

Formaldehyde generated during the polymer production may amount to no more than 250 ppm (0.025 wt%) measured in newly produced polymer dispersion. This is on condition that the content of formaldehyde in the finished adhesive is no more than 10 ppm (0.0010 wt%).

Measured using the Merckoquant method (see Appendix X of RAL-UZ 102), the VdL-RL 03 method "In-can concentration of formaldehyde determined by the acetyl-acetone method", EPA 8315A or another equivalent test method approved by Nordic Ecolabelling.

[1] See the definition of ingoing substances in section 6.2.

✉ Declaration from the adhesive supplier that no formaldehyde has been added and that the polymer used in the adhesive meets the requirement.

✉ Test showing the formaldehyde content of the finished adhesive. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement has been changed in this generation of the criteria.

The requirement has been set to ensure the lowest possible exposure to formaldehyde, since it is classified as carcinogenic and allergenic. Compared with the previous generation of the criteria, the requirement limit has been tightened from 2000 ppm to 10 ppm in the finished adhesive. This makes the requirement limit identical to the limit in the criteria for Nordic Swan Ecolabelled Chemical building products and the criteria for Nordic Swan Ecolabelled Indoor paints and varnishes.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[43], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations. Requirement O9 covers substances for which there are requirements in Appendix C as of March 2020:

- Directive (EU) 2019/1929 concerning Formaldehyde:
  Formaldehyde classifications include H350 and H341. See also requirements O7, O20, O23, O33, O34 and O78.

[43] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

6.6 Plastic, foam, silicone, and rubber

The requirements in this section concern material elements/types made of plastic, foam (not used as a filler material), silicone and rubber (natural and synthetic latex). Fossil, bio-based and recycled materials are covered.

Polymer materials used as textiles and filler materials are not subject to the requirements in this section, but must instead meet those in sections 6.7 and 6.8.

6.6.1 Requirements that apply irrespective of amount in product

The requirements in this section concern all material elements made of plastic, foam, silicone, and rubber (natural and synthetic latex). See the definition of material element in section 6.2.

O10 Information on polymer type and surface treatment

The following applies to all polymer materials (plastic, foam, silicone and rubber) in the toy:

- State polymer type.
- State whether the polymer is fossil or biobased.
- State whether the plastic raw material is recycled*.
- State whether the plastic/foam/rubber/silicone element has a surface treatment.
- State where in the toy any recycled material features and whether the recycled material is pre- or post-consumer or a mix of the two, in accordance with ISO 14021*.

* ***Recycled material:*** *Pre-consumer or post-consumer recycled raw materials, see the definition in the ISO 14021 standard. See the definitions in section 6.2 for more details.*

✉ An overview of the polymer materials used, including the information set out in the requirement.

Background to the requirement

The requirement has been changed in this generation of the criteria.

The requirement has been set to gain an overview of the polymer types used in the toy, and whether these have been given a surface treatment. It is important to be able to judge which requirements in the criteria are triggered and thus need to be documented for the toy in question.

O11 Polymer types and plastic composites – Ban

The following polymer/plastic types and blends must not be present in the toy:

- Chlorinated plastic, e.g. polyvinyl chloride (PVC) and polyvinyl dichloride (PVDC)
- Polycarbonate
- Biodegradable plastic
- Oxo-degradable plastic
- Plastic composites (i.e. plastic blended with other materials such as wood fibre or bamboo)

✉ Declaration from the applicant that the requirement is fulfilled.
✉ Documentation showing the material composition of the product, see requirement O1.

Background to the requirement

The requirement has been changed in this generation of the criteria.

The requirement is designed to ensure that PVC, PVDC and polycarbonate are not included in the product, and to give an overview of the types of plastic included and whether they have been given a surface treatment. PVC can be used as soft or hard PVC. PVDC is a type of PVC with double chlorine atoms. In addition to the health risk of phthalates in soft PVC, the waste treatment of PVC is particularly problematic.

Bisphenol A is a component in the production of polycarbonate plastic and there is a risk that bisphenol could migrate from the plastic. Plastics manufacturers have informed Nordic Ecolabelling that polycarbonate cannot meet the max. migration limit of 0.04 mg/l for bisphenol A, which is the limit set in Appendix C of the EU Toy Safety Directive. Bisphenol is an endocrine disruptor so prohibiting polycarbonate plastic removes the risk of exposure to bisphenol A from this plastic.

Oxo-degradable plastic is conventional plastic (e.g. PE) containing additives (e.g. metal salts) that cause the plastic to begin degrading[44]. Oxo-degradable and biodegradable plastics must not be used, since they "contaminate" the other recycled plastic streams in the Nordic region. Biodegradable plastic should not be confused with plastic based on biopolymers, which are dealt with in requirement O28.

Plastic composites, i.e. plastic blended with other materials such as wood fibre or bamboo, can disrupt current recycling systems. The NIR technology can have problems identifying these types of plastic correctly. With low fractions of other materials, the NIR technology can probably sort the plastic types correctly, but the plastic composites will continue to have a negative effect on the overall quality of the recycled plastic[45]. With this in mind, plastic composites are not permitted, even if the fractions of other materials are as low as 0.5%.

O12 Third-party control of test from EN 71 in EU Toy Safety Directive

The following tests for the polymer materials used must be submitted for toys or elements of toys:

- **EN 71-3:** Toys – Safety requirements – Part 3: Migration of certain elements

  and

- **EN 71-9:** Toys – Safety requirements – Part 9: Organic chemical substances – Requirement

The requirement applies only to types of toys covered by the standards above.

✉ Test report in accordance with EN 71-3 and EN 71-9 for plastic, foam, silicone, or rubber elements, showing fulfilment of the requirement. And declaration from the test laboratory confirming conformity with the requirements in EN 71-3 and EN 71-9 for the types of toys for which the application is being made. The analysis laboratory must meet the requirements in Appendix 2.

[44] EU Plastics Strategy: https://ec.europa.eu/denmark/news/eu-strategi-plastic_da
[46] O. Aerts, Contact allergy caused by methylisothiazolinone and related isothiazolinones, Faculty of Medicine and Health Sciences, University Antwerp 2017

Background to the requirement

The requirement has been made more specific in this generation of the criteria.

The purpose of the requirement is to ensure that tests in accordance with EN 71-3 and EN 71-9 have been performed, and that children are not exposed to the effects of harmful substances in toys. Test reports in accordance with EN 71-3 and EN 71-9 are to be submitted as documentation, showing which tests have been completed, the results and so on. In addition, the test laboratory must confirm compliance with requirements in EN 71-3 and EN 71-9 for the types of toys for which the application is being made. A simple statement of compliance with EN 71-3 and EN 71-9 is not sufficient documentation, as the aim of the requirement is to ensure that tests have been completed and comply with requirements in EN 71-3 and EN 71-9. The declaration of compliance with the requirements in EN 71-3 and EN 71-9 is used to help with the processing of the application.

EN 71-3: Toys – Safety requirements – Part 3: Migration of certain elements. This standard specifies requirements concerning the migration of certain metals and selenium. Migration of metals and selenium is to be tested in accordance with the methods described in EN 71-3. EN 71-3 exempts parts that are not accessible or that are too large to fit in the test cylinder.

EN 71-9: Toys – Safety requirements – Part 9: Organic chemical substances – Requirement. This standard specifies requirements for polymers with regard to the migration of certain monomers, certain VOCs and plasticisers, and inhalation of certain VOCs.

EN 71-9 applies to the following types of toys, where they contain polymers:

- Toys for children under the age of 3 that are intended to be placed in the mouth
- Toys or accessible parts of a toy with a mass of 150 g or less for children under the age of 3 that are intended for play with the hands
- Mouthpiece components in mouth-activated toys
- Inflatable toys with a surface area in excess of 0.5 m^2 when inflated
- Toys to wear over the mouth or nose
- Toys that children can crawl/get into
- Components of graphic instruments sold as toys or used in toys
- Toys or parts of a toy that imitate food
- Toys that imitate jewellery

EN 71-9 refers to EN 71-10 concerning sample preparation and extraction and EN 71-11 concerning analysis methods.

O13 Surface treatment – Chemical products, Classification

Chemical products used for surface treatment of plastic/foam/silicone/rubber elements of the product must not have any of the classifications listed in the table below.

In addition, surface treatments of plastic elements must not negatively affect the recyclability of the polymer material.

Table: List of non-permitted classifications of chemical products

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic acute 1 Aquatic chronic 1 Aquatic chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3 Acute Tox. 4 Acute Tox. 4 Acute Tox. 4	H300 H310 H330 H301 H311 H331 H302 H312 H332
Specific target organ toxicity	STOT SE 1 STOT RE 1 STOT RE 2 STOT SE 2	H370 H372 H371 H373
Sensitising (allergenic)	Resp. sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

☒ Safety data sheet for the chemical product in accordance with current European legislation.

☒ Declaration from the manufacturer of the chemical product used for surface treatment, confirming fulfilment of the requirement.

☒ Declaration from the applicant or the manufacturer of the plastic element, confirming that the surface treatment does not negatively affect recyclability.

Background to the requirement

The requirement is new in this generation of the criteria. For the background to this requirement, see requirement O6.

O14 Surface treatment – CMR substances

The requirement covers ingoing substances[1] in chemical products for surface treatment.

Ingoing substances[1] must not have any classification listed in the table below.

Table: List of non-permitted classifications of ingoing substances

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341

Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

[1] See the definition of ingoing substances in section 6.2.

✉ Declaration from the manufacturer/supplier of the chemical product used for surface treatment, confirming fulfilment of the requirement.

Background to the requirement

For the background to this requirement, see requirement O7.

The requirement in relation to the EU Toy Safety Directive – Appendix C

This requirement covers several of the substances for which there are requirements in Appendix C – read more under requirement O7.

O15 Surface treatment – Prohibited substances

The requirement covers ingoing substances[1] in chemical products for surface treatment.

The following substances must not be present[1]:

- Substances on the EU's Candidate List in accordance with REACH, 1907/2006/EC, article 59, section 10 on the European Chemicals Agency (ECHA) website.
- Substances that are assessed by the EU to be PBT substances (persistent, bioaccumulative and toxic substances) or vPvB substances (very persistent and very bioaccumulative) in accordance with the criteria in Annex XIII of REACH.
- Substances that are considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. The list can be found here: http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf

In addition, the following substances and substance groups must not be present[1]. There may be overlaps between the substances on the following item list and the substances or groups of substances of which the properties are listed above:

- Halogenated organic compounds[2] (e.g. organic chloroparaffins, fluorine compounds, halogenated flame retardants, chlorophenols, etc.). The following are exempted:
  - Bronopol up to 0.05 wt%
  - The blend (3:1) of CMIT/MIT (5-chloro-2-methyl-4-isothiazolin-3-one; 2-methyl-4-isothiazolin-3-one) up to 0.0015 wt%
  - IPBC (iodopropynyl butylcarbamate) up to 0.20 wt%
  - Pigment which complies with EU requirements for dyes in plastic materials in contact with food under Resolution AP (89) point 2.5.
- Isothiazolinones (total) at more than 0.05 wt%
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates or other alkylphenol derivatives[3]
- Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)

- Phthalates[4]
- Pigments and additives based on lead, tin, cadmium, chromium (VI), mercury, antimony, arsenic and their compounds
- Volatile aromatic hydrocarbons (VAH)[5]
- Volatile aromatic compounds (VOC)[6] at more than 80 g/l

[1] See the definition of ingoing substances in section 6.2.

[2] Be aware of national legislation concerning PFOA if the product is to be sold/marketed in Norway. In Norway, PFOA is governed by the "Regulation on restrictions to the use of health- and environmentally hazardous chemicals and other products (Product Regulations)", Section 2-32.

[3] Alkylphenol derivatives are defined as substances released from alkylphenols on degradation.

[4] Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).

[5] Volatile aromatic hydrocarbons (VAH) are defined as aromatic compounds whose boiling point is max 250°C, measured at a standard pressure of 101.3 kPa.

[6] Volatile organic compounds (VOC) are defined as organic substances with an initial boiling point of max 250°C measured at a standard pressure of 101.3 kPa.

✉ Declaration from the manufacturer/supplier of the chemical product used for surface treatment, confirming fulfilment of the requirement.

Background to the requirement

The requirement has been changed in this generation of the criteria.

Isothiazolinones in plastic and surface treatment

The rubber industry (latex emulsions) and the plastics industry (polymer solutions) use isothiazolinones during the manufacture of plastics. Isothiazolinones CMI (5-chloro-2-methyl-isothiazolin-3(2H)-one)/MI (2-methylisothiazolin-3(2H)-one) (3:1), MI (2-methylisothiazolin-3(2H)-one) and OIT (n-octylisothiazolinone) have a certain capacity to penetrate through rubber and plastic[46].

Several chemicals can be used as alternatives to OBPA (oxybisphenooxyarsine) in plastics. The main options are isothiazolinones including n-octylisothiazolinone (OIT), dichlorooctylisothiazolinone (DCOIT) and others, such as butylbenzisothiazolinone (BBIT)[47].

For more background on this requirement, see requirement O8.

The requirement in relation to the EU Toy Safety Directive – Appendix C

This requirement covers several of the substances for which there are requirements in Appendix C – read more under requirement O8.

[46] O. Aerts, Contact allergy caused by methylisothiazolinone and related isothiazolinones, Faculty of Medicine and Health Sciences, University Antwerp 2017
[47] Rethinking biocides for plastics in Compounding World 2013
http://www.nanobiomatters.com/wordpress/wp-content/uploads/2013/07/CWJuly2013.pdf

6.6.2 Requirements that apply to plastic elements/types that children come into contact with or that constitute over 5% by weight of the toy

The requirements in this section cover all plastic elements with which the child may come into contact during normal or expected use of the toy, or where the type of plastic makes up more than 5% by weight of the toy. For a definition of the terms material element and type, see section 6.2.

O16 Recycled plastic – Use and source

The following applies regarding toys for children under the age of 3, toys that are intended to be placed in the mouth or toys that imitate food and services:

Recycled plastic* must not be used unless it originates from the production of Nordic Swan Ecolabelled toys.

For other toys:

Recycled plastic* must only originate from one of the sources below (or a combination of these):

- Plastic approved for contact with food.
- Recycled plastic from production lines where the whole production chain is known (e.g. residual plastics from in-house production or other known production) and where it can be guaranteed that the plastic does not contain prohibited substances as set out in requirements O17–O22. Such plastic must also conform with the EU Toy Safety Directive and the safety requirements in EN 71.
- Recycled plastic from the production of Nordic Swan Ecolabelled toys.

* ***Recycled fibres or materials:*** *Pre-consumer or post-consumer recycled raw materials, see the definition in the ISO 14021 standard. Both mechanically and chemically recycled fibres are included. See the definitions in section 6.2 for more details.*

✉ Detailed description of the sources of the recycled plastic and the means of ensuring that the plastic conforms to requirements O17–O22, the EU Toy Safety Directive and the safety requirements in EN 71. In addition, the applicant must submit written procedure which are implemented in the company to ensure ongoing compliance with the requirement during production.

Background to the requirement

The requirement is new in this generation of the criteria.

Nordic Ecolabelling wishes to promote the use of recycled materials. A particular emphasis is placed on substances that are harmful to health when it comes to toys in general, but particularly toys for children under the age of 3, toys that are intended to be placed in the mouth or toys that imitate food and services, where the exposure to chemicals is even higher. For this reason, recycled plastic is only permitted in toys for children under the age of 3, toys that are intended to be placed in the mouth or toys that imitate food and services. Furthermore, the recycled plastic must come from sources that are able to trace the plastic back down the chain to ensure that it does not contain substances that are harmful to health. If the plastic originates from the production of Nordic Swan Ecolabelled toys, this recycled plastic can be used for all types of toys covered by the criteria, since the plastic will meet all the other plastic requirements.

O17 CMR substances added to the polymer

The requirement concerns ingoing substances[1] in additives that are actively added to the polymer raw material in the master batch or compound in the production of plastic, foam, silicone or rubber. The requirement also covers substances that are added during re-compounding of recycled plastic raw materials.

Ingoing substances[1] in additives must not have any classification listed in the table below.

Table: List of non-permitted classifications of ingoing substances in additives

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

[1] *See the definition of ingoing substances in section 6.2.*

✉ Declaration from the manufacturer/supplier for all plastic, foam, silicone, or rubber elements, confirming fulfilment of the requirement.

Background to the requirement

This generation of the criteria now makes it clear that the requirement covers ingoing substances in additives that are actively added to the polymer raw material in the master batch or compound. Substances that arise from the actual polymer production are thus not covered by this requirement. Recycled plastic raw materials are counted as polymer raw materials, where additives that are actively added to a new master batch or compound are covered by requirements. Substances such as residual monomers are instead covered by requirement O20.

Plastic approved for contact with food

Due consideration has been given to whether the fact that plastic elements are approved or intended for contact with food in line with Regulation (EC) No 1935/2004 and Regulation (EC) No 10/2011 can be used as documentation and render such elements exempt from requirements O17 to O20. The EU regulations for plastic food contact materials set limits on the level of substance migration to food, taking into account assumptions about bodyweight, container surface area and food composition. Since the EU rules set migration limits in relation to the amount in the food based on the above assumptions, it has been judged that food contact approval does not allow for exemptions from requirements O17 to O20, nor in the case of small plastic elements.

Regulation (EC) No 1935/2004 requires that materials do not transfer their constituents to food in quantities which could endanger human health.

Regulation (EC) No 10/2011 sets rules on establishing a plastic material's compliance with the applicable provisions and specifications, and on limits for the use of the specified substances. The latter includes migration limits that specify a maximum for the number of substances that are permitted to migrate to food.

The specific migration limit is a permitted maximum amount of a substance in a food. The aim of this limit is to ensure that the material in contact with the food does not pose a health risk.

Migration limits are set based on a conventional assumption that a person with a bodyweight of 60 kg consumes 1 kg of food each day, of which around 200 g is fat, and that the food in question is packaged in a cubic container with a surface area of 6 dm^2 that releases the substance in question. However, various deviations from the conventional assumption may occur, such as[48]:

- For very small and very large containers, the actual surface area in relation to the volume of the packaged food differs greatly from the conventional assumption. For smaller packaging, where the surface is relatively larger in relation to the volume of the content, the migration to the food will be greater.
- Infants and young children consume larger amounts of food per kg of bodyweight than adults, and do not yet consume a varied diet that would limit the intake of substances that migrate from materials in contact with food.

In addition to complying with the EU Toy Safety Directive (2009/48/EC), toy cups, plates, cutlery, and similar items conform to the rules for materials in contact with food.

More background to the requirement:

See requirement O7.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O17 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O7.

O18 Prohibited substances added to the polymer

The requirement concerns additives that are actively added to the polymer raw material in the master batch or compound in the production of plastic, foam, silicone, or rubber. The requirement also covers substances that are added during re-compounding of recycled plastic raw materials.

The following substances must not be present[1] in additives in the adhesive:

- Substances on the EU's Candidate List in accordance with REACH, 1907/2006/EC, article 59, section 10 on the European Chemicals Agency (ECHA) website.
- Substances that are assessed by the EU to be PBT substances (persistent, bioaccumulative and toxic substances) or vPvB substances (very persistent and very bioaccumulative) in accordance with the criteria in Annex XIII of REACH.
- Substances that are considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects.

[48] Regulation (EC) No 10/2011: https://eur-lex.europa.eu/legal-content/DA/TXT/PDF/?uri=CELEX:32011R0010&from=EN

The list can be found here: http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf

In addition, the following substances and substance groups must not be present[1]. There may be overlaps between the substances on the following item list and the substances or groups of substances of which the properties are listed above:

- Halogenated organic compounds[2] (e.g. organic chloroparaffins, fluorine compounds, halogenated flame retardants, chlorophenols, etc.). The following are exempted:
  - Bronopol up to 0.05 wt%
  - The blend (3:1) of CMIT/MIT (5-chloro-2-methyl-4-isothiazolin-3-one; 2-methyl-4-isothiazolin-3-one) up to 0.0015 wt%
  - IPBC (iodopropynyl butylcarbamate) up to 0.20 wt%
  - Pigment which complies with EU requirements for dyes in plastic materials in contact with food under Resolution AP (89) point 2.5.
- Isothiazolinones (total) at more than 0.05 wt%
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates or other alkylphenol derivatives[3]
- Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)
- Phthalates[4]
- Pigments and additives based on lead, tin, cadmium, chromium (VI), mercury, antimony, arsenic and their compounds

[1] *See the definition of ingoing substances in section 6.2.*

[2] *Be aware of national legislation concerning PFOA if the product is to be sold/marketed in Norway. In Norway, PFOA is governed by the "Regulation on restrictions to the use of health- and environmentally hazardous chemicals and other products (Product Regulations)", Section 2-32.*

[3] *Alkylphenol derivatives are defined as substances released from alkylphenols on degradation.*

[4] *Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).*

☒ Declaration from the manufacturer/supplier for all plastic, foam, silicone, or rubber elements, confirming fulfilment of the requirement.

☒ Declaration from the manufacturer/supplier of the chemical product used for surface treatment, confirming fulfilment of the requirement.

Background to the requirement

The requirement has been changed in this generation of the criteria.

This generation of the criteria now makes it clear that the requirement covers ingoing substances in additives that are actively added to the polymer raw material in the master batch or compound. Substances that arise from the actual polymer production are thus not covered by this requirement. Recycled plastic raw materials are counted as polymer raw materials, where additives that are actively added to a new master batch or compound are covered by requirements. Substances such as residual monomers are instead covered by requirement O20.

For the background to this requirement, see requirements O8 and O15.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O18 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O8.

O19 Pigments in plastic, foam, silicone, and rubber

Pigments used for the colouring of plastic, foam, silicone, and rubber must be approved in line with one of the guidelines below:

- The EU's guidelines for materials that are intended to come into contact with food (Regulation (EC) No 1935/2004)
- The guidelines of the US Food and Drug Administration (FDA)
- The guidelines of the German Federal Institute for Risk Assessment (BfR)

✉ Declaration from the manufacturers/suppliers of the different polymer materials, stating that the pigments used comply with the requirement.

✉ Documentation that the pigments have one of the approvals according to the requirement.

Background to the requirement

Pigments used for the colouring of plastic, foam, silicone and rubber must be approved in line with the guidelines for materials that are intended to come into contact with food (Regulation (EC) No 1935/2004), or be approved by the US Food and Drug Administration (FDA) or the German Federal Institute for Risk Assessment (BfR). These approvals set limits on the migration of undesirable substances to food. It is therefore relevant to set the same requirements concerning pigments in polymer materials in Nordic Swan Ecolabelled toys, since toys are often placed in the mouth or sucked on, particularly by young children. The EU Toy Safety Directive has no specific requirements concerning pigments in polymer materials.

O20 Residual monomers in the polymer

The requirement covers residual monomers that derive from the actual polymer production.

Recycled plastic is exempted from this requirement.

The level of residual monomers with a classification listed in the table below must not exceed 100 ppm/dry substance per classification, measured in the newly produced polymer dispersion.

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3 Acute Tox. 4 Acute Tox. 4	H300 H310 H330 H301 H311 H331 H302 H312

	Acute Tox. 4	H332
Specific target organ toxicity	STOT SE 1 STOT RE 1 STOT RE 2 STOT SE 2	H370 H372 H371 H373
Sensitising (allergenic)	Resp. sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

✉ Declaration from the polymer manufacturer that the requirement is fulfilled.

Background to the requirement

The requirement is new for this generation of the criteria.

The requirement applies to impurities that derive from the actual polymer production. Ingoing substances in additives that are actively added to the polymer raw material in the master batch or compound are instead covered by requirements O17 and O18.

Residual monomers in the polymer can have an impact on health, for example due to their harmful properties such as being allergenic or carcinogenic. This impact is considered to be so high, partly because monomers are often very reactive substances, that it is relevant to set a separate requirement limiting the total content of residual monomers in the polymer. This requirement limits the content of residual monomers that pose a hazard to health.

O12 requires testing in line with EN 71-9 for migration of the monomers acrylamide (CAS no. 79-06-1), bisphenol A (CAS no. 80-05-7), formaldehyde (CAS no. 50-00-0), phenol (CAS no. 108-952) and styrene (CAS no. 100-42-5).

This requirement concerns residual monomers in the newly produced polymer dispersion. This requirement is broader than the requirement in the EU Toy Safety Directive in that it prohibits all residual monomers classified as harmful to health in amounts exceeding 100 ppm.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[49], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations. Requirement O20 covers substances for which there are requirements in Appendix C as of March 2020:

- Directive (EU) 2019/1929 concerning Formaldehyde:
  Formaldehyde classifications include H350 and H341. See also requirements O7, O9, O23, O33, O34 and O78.
- Directive (EU) 2017/774 concerning Phenol:
  Phenol classifications include H341. See also requirement O7.
- Directive (EU) 2017/898 concerning Bisphenol A:

[49] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

Bisphenol A classifications include H360. See also requirement O7.

O21 D4, D5 and D6 in silicone

The cyclic siloxanes D4 (CAS no. 556-67-2), D5 (CAS no. 541-02-6) and D6 (CAS no. 540-97-6) may only be present in the form of residues from the raw material production, and each one may only be present in amounts up to 1000 ppm in the silicone raw material.

✉ Test from the silicone manufacturer documenting compliance with the requirement. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement is new in this generation of the criteria.

The cyclic siloxanes D4 (CAS no. 556-67-2), D5 (CAS no. 541-02-6) and D6 (CAS no. 540-97-6) are included in the EU's Candidate List, as they are persistent, bioaccumulative and toxic (PBT/vPvB substances). However, a specific requirement has been included for these siloxanes to make it clear that documentation is required to confirm that the content is below the stated limit value in any silicone used. This is considered relevant because much of the toy production takes place in countries that are not covered by REACH.

Residual levels of D4, D5 or D6 in the silicone mix must not exceed 0.1000 wt% (1000 ppm) of each. This limit value has been chosen to correspond with the threshold for mandatory inclusion of information on the substances on a safety data sheet.

O22 Polycyclic aromatic hydrocarbons (PAH) in plastic, foam, silicone, and rubber

For plastic, foam, rubber and silicone, the PAH levels in the table below must be complied with. The contamination limit of 100 ppm in the definition of ingoing substances[1] thus does not apply in this requirement.

[1] *See the definition of ingoing substances in section 6.2.*

Table: Requirements concerning selected PAH content in the material

Substance name	CAS no.	Requirement limit
Benzo[a]pyrene	50-32-8	< 0.5 mg/kg
Benzo[e]pyrene	192-97-2	< 0.5 mg/kg
Benzo[a]anthracene	56-55-3	< 0.5 mg/kg
Dibenzo[a,h]anthracene	53-70-3	< 0.5 mg/kg
Benzo[b]fluoranthene	53-70-3	< 0.5 mg/kg
Benzo[j]fluoranthene	205-82-3	< 0.5 mg/kg
Benzo[k]fluoranthene	207-08-9	< 0.5 mg/kg
Chrysene	218-01-9	< 0.5 mg/kg
Acenaphthylene	208-96-8	Counted in total for all 24
Acenaphthene	83-32-9	Counted in total for all 24
Benzo[ghi]perylene	191-24-2	Counted in total for all 24
Fluorene	86-73-7	Counted in total for all 24
Indeno[1,2,3-cd]pyrene	193-39-5	Counted in total for all 24
Phenanthrene	85-01-8	Counted in total for all 24
Pyrene	129-00-0	Counted in total for all 24
Anthracene	120-12-7	Counted in total for all 24
Fluoranthene	206-44-0	Counted in total for all 24
Cyclopenta[c,d]pyrene	27108-37-3	Counted in total for all 24

Dibenzo[a,e]pyrene	192-65-4	Counted in total for all 24
Dibenzo[a,h]pyrene	189-64-0	Counted in total for all 24
1-Methylpyrene	2381-21-7	Counted in total for all 24
Naphthalene	91-20-3	Counted in total for all 24
Sum of all 24 PAHs in the table		**< 5 mg/kg**

Test method: Determination of polycyclic aromatic hydrocarbons (PAH) using gas chromatography with mass selective detection (MSD).

Alternatively, a certificate for Oeko-Tex 100 Class I Baby can be used.

✉ Test report for plastic, silicone, or rubber element, showing compliance with the requirement. The analysis laboratory must meet the requirements in Appendix 2.

✉ Oeko-Tex 100 Class I Baby certificate for plastic, silicone, or rubber element.

Background to the requirement

The requirement is new in this generation of the criteria.
Several of the PAHs are carcinogenic and classed as Carc. 1B. PAHs can be found in plastic and rubber parts in a wide range of consumer products. They are present as impurities in some of the raw materials used to produce such products, namely in plasticising oils and in carbon black. The substances are not intentionally added to the products in question, and they have no specific function as constituent ingredients of the plastic or rubber parts.

Consumer magazine Tænk conducted tests in 2010 and found PAHs in 14 of the 20 toy pieces tested. PAHs usually originate from two types of additives, which are plasticising and process oils (extender oils) and carbon black, used in rubber and plastic. PAH testing is not required by the EU Toy Safety Directive. Instead, there is a REACH restriction (Regulation (EU) No 1272/2013) that applies to products including toys and covers eight PAHs: “Therefore the placing on the market of toys and childcare articles, containing any of the PAHs in concentrations greater than 0.5 mg/kg in their accessible plastic or rubber parts, should be prohibited.” However, the restriction in REACH does not require a third-party control showing compliance with the requirement.

The requirement in these criteria has the same limit value of 0.5 mg/kg for each of the REACH PAHs. In addition, Nordic Ecolabelling’s requirement applies to a further 16 PAHs, with the sum for all 24 PAHs limited to a maximum of 5 mg/kg. The requirement is documented with a test report showing fulfilment of the requirement. The test method is identical to the method used in the Oeko-Tex 100 standard. The requirement is identical with the Oeko-Tex 100 standard’s limit for Class I Baby and so an Oeko-Tex Class I Baby certificate can also be used as documentation for the requirement.

O23 Foam (e.g. EVA, polyurethane (PUR) and expanded polystyrene) – Emissions

Emissions of the following substances and substance groups must not exceed the limits stated in the table below.

Emissions testing must be performed in line with parts 3, 6, 9 and 11 of the ISO 16000 standard.

Table: Requirement levels for emissions of volatile organic compounds

Substance or substance group	Requirement limit
Formaldehyde (50-00-0)	0.1 mg/m^3
Toluene (108-88-3)	0.1 mg/m^3
Styrene (100-42-5)	0.005 mg/m^3

Vinylcyclohexene (100-40-3)	0.002 mg/m^3
4-Phenylcyclohexene (4994-16-5)	0.03 mg/m^3
Vinyl chloride (75-01-4)	0.002 mg/m^3
Aromatic hydrocarbons	0.3 mg/m^3
Volatile organic compounds	0.5 mg/m^3

✉ Test reports showing that the requirement is fulfilled. The analysis laboratory must meet the requirements in Appendix 2.

✉ Alternatively, a licence for the EU Ecolabel for mattresses, or a certificate for either Oeko-Tex Class I Baby or CertiPUR can be used as documentation for the requirement.

Background to the requirement

The requirement is new in this generation of the criteria.
Foam materials can include hazardous chemicals, either as residue from polymer production, or additives in the material. For example, polyurethane foam and polystyrene may contain and emit volatile organic compounds which may be harmful to health[50]. As a child will be in close contact with these materials and will be exposed to any emissions, requirements are set for the most important substances. Several certification schemes have the same emission requirements for these materials as here in this requirement, hence the inclusion of an option to use a range of certification schemes as documentation. There may, however, be small differences between the certification schemes and the requirement, such as CertiPUR having a threshold value for aromatic hydrocarbons of 0.5 mg/m^3 rather than 0.3/m^3. It is, however, still considered appropriate to document the requirement with a CertiPUR certificate.

EVA (ethylene-vinyl acetate) may be used in foam toys and toy furniture. EVA, or PEVA as it is also called, is a copolymer of ethylene and vinyl acetate, the result of which is a rubber-like material with a wide range of applications.

Polyurethane (PUR) is used in toys such as building blocks.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[51], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations. Requirement O23 covers substances for which there are requirements in Appendix C as of March 2020:

- Directive (EU) 2019/1929 concerning Formaldehyde:
  Formaldehyde classifications include H350 and H341. See also requirements O7, O9, O20, O33, O34 and O78.

O24 Foam (e.g. EVA, polyurethane (PUR) and expanded polystyrene) – Emissions of formamide

Emissions of formamide must be no higher than 20 µg/m^3 after a maximum of 28 days from commencement of the emission testing of foam toy materials.

[50] Survey, emissions and health assessment of chemical substances in baby products, Danish Environmental Protection Agency, 2008
[51] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

Test methods for emissions in line with standards ISO 16000-6 and ISO 16000-9.

✉ Test reports showing that the requirement is fulfilled. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement is new in this generation of the criteria.

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[52], and these requirements are then added to the EU Toy Safety Directive by means of separate directives.

Directive (EU) 2015/2115 concerning Formamide:

Formamide (CAS no. 75-127) is classified as Repr. 1B, H360D and is used in the plastics and polymers industry as a solvent, a plasticiser or combined with a foaming agent to manufacture foam. In 2010, several EU members states found formamide in a number of foam puzzle mats, generating concern about children's health if breathing the substance in. There are no known uses of formamide in materials intended to come into contact with food[53].

The EU Toy Safety Directive (2009/48/EC) and Directive (EU) 2015/2115 have the following limits for formamide in toys for children under the age of 3 or toys that are intended to be placed in the mouth: 20 µg/m^3 (emission limit) after a maximum of 28 days from commencement of the emission testing of foam toy materials containing more than 200 mg/kg (cut-off limit based on content). Test methods for emissions in line with standards ISO 16000-6 and ISO 16000-9.

This requirement goes further than the EU Toy Safety Directive, in that the requirement applies to all types of toys that contain foam. In addition, the emissions test must be conducted even if the foam contains less than 200 mg formamide per kg foam.

See also requirement O7.

O25 EVA, Polyurethane (PUR) or polystyrene foam – Blowing agents and isocyanate compounds

The following must be satisfied in the production of foam:

- CFC, HCFC, HFC, methylene chloride or other halogenated organic compounds may not be used as blowing agents.
- Isocyanate compounds may only be used in a closed process with the prescribed protective equipment in accordance with the official requirements.

✉ Declaration from the foam manufacturer/supplier showing that the requirement is fulfilled.

[52] https://mfvm.dk/nyheder/nyhed/nyhed/populaert-legetoej-fyldt-med-farlig-kemi/
[53] Directive (EU) 2015/2115: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32015L2115

Background to the requirement
The requirement has been expanded in this generation of the criteria to also include foams made of EVA and polystyrene. Isocyanate compounds have also been added to the requirement.

Blowing agents
Halogenated organic compounds may not be used as blowing agents or auxiliaries for these. Historically, CFC, HCFC and HFC have been used in the production of PU foam, and it is generally known that these substances are harmful to the environment, especially as greenhouse gases and as ozone depleting substances. The requirement prohibits the use of halogenated organic compounds that are used as blowing agents or auxiliaries for these. Many manufacturers of PU foam have replaced CFC and HCFC with carbon dioxide but ensuring that they are not used is still considered relevant.

Blowing agents are only relevant for PU foam, as the production of latex foam does not require blowing agents. Expanded polystyrene uses water or pentane as a blowing agent.

Isocyanates
For a healthier working environment, isocyanate compounds may only be used in a closed process with the prescribed protective equipment in accordance with the official requirements. Diisocyanates are the second most important raw material in PU production. Toluene diisocyanate (TDI, CAS no. 26471-62-5) and methylene diphenyl diisocyanate (MDI, CAS no. 32055-14-4) are the two technical options currently found in the market. TDI, MDI or a mix of the two chemicals may be used, although the use of pure TDI appears to be the most customary choice among manufacturers today. TDI and MDI carry a large number of hazard statements, such as H351: Suspected of causing cancer, H317: May cause an allergic skin reaction and H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. TDI also has H330: Fatal if inhaled and H412: Harmful to aquatic life with long lasting effects[54].
MDI appears to be less problematic, especially with regard to inhalation of the substance, and for the environment. Manufacturers believe, however, that their production systems take this into account, since personnel's exposure to TDI is controlled, and TDI is used in a significant share of the market in Europe. Foam made from MDI also has higher density (+ 30%), which requires more of the raw material, making the foam more expensive.

CertiPUR prohibits the use of CFC, HCFC and dichloromethane (methylene chloride), but does not set requirements concerning isocyanates.

O26 Elastomers (e.g. rubber, silicone, and thermoplastic elastomer (TPE)) – Nitrosamines and nitrosatable substances

The following requirement limits must be met:

- Migration of N-nitrosamines must not exceed 0.01 mg/kg elastomer.
- Migration of N-nitrosatable substances must not exceed 0.1 mg/kg elastomer.

The following tests are to be submitted:

[54] Updated Working Document for THE REVISION OF THE EU ECOLABEL CRITERIA FOR BED MATTRESSES, version 4 2013

EN 71-12: Toys – Safety requirements – Part 12: N-nitrosamines and N-nitrosatable substances

Note that EN 71-12 only requires tests for certain types of toys or parts of a toy. In these criteria, the requirement to test for the above in line with EN 71-12 applies to all types and parts of toys that contain elastomers. In addition, for some types of toys the requirement limit is stricter than in EN 71-12.

✉ Test report in line with EN 71-12 for toys or parts of a toy, showing fulfilment of the requirement. Plus, declaration from the test laboratory confirming conformity with the requirements in EN 71-12. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement has been changed in this generation of the criteria. The previous generation accepted the test method EN 12868 –Method for determining the release of N-nitrosamines and N-nitrosatable substances from elastomer or rubber teats and soothers. In this generation of the criteria, applicants must use the same test method that is described in the EU Toy Safety Directive and EN 71-12. The requirement limits remain unchanged from the previous generation of the criteria. EN 71-12 specifies requirements concerning the migration of N-nitrosamines and N-nitrosatable substances.

EN 71-12 applies to the following types or part of toys, where they contain elastomers:

- Toys for children under the age of 3
- Toys that are intended or likely to be placed in the mouth

The EU Toy Safety Directive and EN 71-12 set the following requirements:

Product type	**N-nitrosamines** (mg/kg)	**N-nitrosatable substances**
a) Toys for children under the age of 3 that are intended or likely to be placed in the mouth	0.01	0.1
b) Toys for children under the age of 3 that are not covered by a)	0.05	1
c) Toys for children over the age of 3 that are intended to be placed in the mouth	0.05	1

The purpose of the requirement is to ensure that children are not exposed to the effects of harmful substances in toys. The requirement goes further than the EU Toy Safety Directive and EN 71-12 in that testing is to be carried out for all types and parts of toys that contain elastomers. In addition, the toys must meet the strictest limit, i.e. 0.01 mg/kg for N-nitrosamines and 0.1 mg/kg for N-nitrosatable substances, whatever the type of toy.

Elastomers are macromolecular materials which quickly regain their original form after significant deformation caused by stretching or pulling. Elastomers such as latex (rubber), thermoplastic elastomer (TPE) and silicone contain a number of substances which could be released from the material. Substances that are harmful to health, such as nitrosamines, may be formed during the vulcanisation process when manufacturing these materials. Most of these substances can be carcinogenic. Nordic Ecolabelling judges that this requirement concerning elastomers such as rubber and silicone is relevant for toys, since children often make skin contact with the toy and there is also a risk that the child will put the material in their mouth.

Test reports in accordance EN 71-12 are to be submitted as documentation, showing which tests have been completed, the results and so on. In addition, the test laboratory must confirm compliance with requirements in EN 71-12. A simple statement of compliance with EN 71-12 is not sufficient documentation, as the requirement applies to more toy types than are covered by EN-71-12 and to the strictest limit for migration in EN 71-12. The declaration of compliance with the requirements in EN 71-12 is used to help with the processing of the application.

O27 Elastomers (e.g. rubber, silicone, and thermoplastic elastomer (TPE)) – 1,3-butadiene

The requirement relates to product elements made of elastomers such as rubber (latex), thermoplastic elastomer (TPE) and silicone.

The content of 1,3-butadiene must be less than 1 mg/kg polymer and must be determined using test method EN 13130-4.

✉ Test report documenting compliance with the requirement. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement is new in this generation of the criteria.

Several synthetic rubbers contain 1,3 butadiene (CAS no. 106-99-0), which has the following classifications: H340: May cause genetic defects and H350: May cause cancer. Butadiene functions as a monomer in the production of polymers such as synthetic rubber (latex) and elastomers such as styrene-butadiene rubber (SBR), polybutadiene rubber (PBR), polychloroprene (Neoprene) and nitrile rubber (NR)[55]. The requirement aims to ensure that work is conducted to achieve the lowest possible monomer content in the final product.

6.6.3 Requirements that apply to plastic types constituting over 10% by weight of the toy

The requirements in this section concern all types of plastic, foam, silicone, and rubber (natural and synthetic latex), where the type of plastic constitutes over 10 wt% of the toy. For a definition of material type, see section 6.2.

O28 Raw materials for bio-based polymers

Palm oil, soya oil and soya flour must not be used as raw materials for bio-based polymers.

Raw materials used for bio-based polymers must also meet one of the requirements below:

- Be secondary raw materials*.
- Primary raw materials (e.g. maize, sugar cane and sugar beet) must not be genetically modified organisms (GMO)**. Sugar cane must in addition be Bonsucro certified***.

** Secondary raw materials are defined here as waste products from other production, e.g. by-products such as straw from grain production and by-products from maize. PFAD (Palm Fatty Acid Distillate) from palm oil is not considered a secondary raw material and therefore must not be used.*

*** Genetically modified organisms are defined in EU Directive 2001/18/EC.*

[55] Dow https://www.dow.com/hydrocarbons/c4/prod/buta.htm visited 02.11.2018

**** The producer of the bio-based polymer must hold Bonsucro's chain of custody (CoC) certification. The chain of custody must be ensured through mass balance. Book and claim systems are not accepted. The manufacturer of the bio-based polymer must document its purchase of certified raw materials for polymer production, for example in the form of specifications on an invoice or delivery note.*

Nordic Ecolabelling may, if appropriate, consider other certification systems.

- ✉ Declaration from the polymer manufacturer that palm oil (incl. PFAD (Palm Fatty Acid Distillate)), soya oil and soya flour are not used as raw materials in the bio-based polymer.
- ✉ For secondary raw materials: Documentation from the polymer manufacturer showing compliance with the requirement's definition of secondary raw materials. The chain of custody must be traceable back to the production/process that generated the residual product.
- ✉ For primary raw materials (incl. certified sugar cane): Declaration from the polymer manufacturer that the raw materials are not GMO under the terms of the requirement.
- ✉ For sugar cane: Copy of a valid CoC certificate or a certificate number. Documentation such as an invoice or delivery note from the producer of the bio-based polymer, showing the purchase of bio-based polymer from certified raw material in at least the same annual quantity as is used in the production of the bio-based polymer.

Background to the requirement

The requirement is new in this generation of the criteria.

In terms of resources and climate, it makes sense to promote the use of renewable raw materials over virgin fossil materials. It is, however, important that the bio-based raw materials are grown sustainably. Even renewable raw materials may be associated with environmental and social problems. The establishment of palm oil plantations is one of the main causes of rainforest destruction, which threatens the living conditions of indigenous people, plants and animals. Rainforests are particularly important for biodiversity, as they are the most species-rich ecosystems on the planet[56]. Soya beans are grown on land that is often established in the place of rainforest and forest savannah in South America. Soya production is one of the greatest threats to rainforest on the American continent, particularly in the southern Amazon[57]. It is on this basis that the use of palm oil, soya oil and soya flour as raw materials for bio-based polymers is prohibited.

The ideal option is to use secondary raw materials, which are defined here as waste products from other production, e.g. by-products such as straw from grain production and by-products from maize. Using secondary raw materials for the production of bio-based polymers makes use of elements that are not suitable for human consumption. This in turn reduces the risk of driving up prices and damaging the availability of food.

PFAD (Palm Fatty Acid Distillate) from palm oil is not considered a secondary raw material and therefore must not be used. PFAD occurs in the production of palm oil for the food industry.

[56] OLSEN LJ, FENGER NA & GRAVERSEN J 2011. Palmeolie – Danmarks rolle i forhold til den globale produktion af palmeolie. WWF Report DK. WWF World Wide Fund for Nature Denmark.
[57] http://www.worldwildlife.org/industries/soy, (27.01.2016)

PFAD can be used, for example, in biofuels and there is rarely any traceability in the processes that generate PFAD[58]. For this reason, it is not considered a secondary raw material in this requirement.

Sugar cane is often used as a bio-based raw material for polymer production. Since bio-based plastic remains relatively new and the number of manufacturers is considered to be relatively low, sugar cane is permitted as a raw material, even though it is not a secondary raw material/residual product. Sugar cane, on the other hand, is a highly relevant raw material, with the green polyethylene produced by Braskem, for example, using ethanol from sugar cane in its production. Sugar cane is not currently associated as strongly with the problems of rainforest destruction mentioned above as palm oil and soy oil are, but there can also be challenges linked to its production. However, as demand for sugar cane as a raw material rises, opportunities to expand the production areas are being explored. A loss of biodiversity in the rainforest may therefore become a problem associated with sugar cane in the future. Nordic Ecolabelling's expert group on renewable raw materials has also assessed the standard for certification of sugar cane, Bonsucro, and has concluded that in its current form it does not meet Nordic Ecolabelling's requirements concerning standards. For one thing, it is unclear whether the standard goes any further than the relevant legislation, plus it does not refer to any international conventions. Nevertheless, the standard is considered the best available tool in the market for sustainable sugar cane production, which is why requirements are set concerning certified raw material. Nordic Ecolabelling may also assess and approve other certification schemes. For all the certifications, a requirement is set concerning traceability at mass balance level. The book and claim system is not approved.

GMO is a highly debated topic, and several countries have banned cultivation of GMOs. Topics discussed are food security, land use, lack of scientific knowledge about effects under local agricultural/forest conditions and risk of adverse effects on health and the environment. Nordic Ecolabelling emphasises the precautionary principle and bases its position on regulations that have a holistic approach to GMOs. This means that sustainability, ethics, and benefit to society must be emphasised together with health and the environment. We are not in principle against genetic engineering and GMOs per se but are concerned about the consequences when genetically modified plants, animals and microorganisms are propagated in nature. Nordic Ecolabelling believes that GMOs should be assessed on a case-by-case basis.

Research has not clearly shown that today's GMOs contribute towards sustainable agriculture with less use of pesticides, and there is a lack of research into long-term consequences of GMOs, both environmental, social, and economic consequences. There are potential adverse effects of GMOs along the entire value chain from crop research and development, through cultivation, storage, use and waste management[59].

[58] Impact analysis for Swedish bill:
https://www.regeringen.se/490685/globalassets/regeringen/block/konsekvensanalys---andring-av-forordning-om-hallbarhetskriterier-for-biodrivmedel-och-flytande-biobransle.pdf
[59] Catacora-Vargas G (2011): "Genetically Modified Organisms – A Summary of Potential Adverse Effects Relevant to Sustainable Development". Biosafety Report 2011/02, GenØk – Centre for Biosafety.

In several of these stages, there is a lack of scientific studies, and there is a lack of holistic assessment.[60,61,62,63] Today's GMOs are also adapted to industrial agriculture with companies that have obtained a monopoly-like position, and Nordic Ecolabelling wishes to contribute to limiting the negative consequences of this.

GMOs that can be relevant for biobased polymer production are GM (genetically modified) maize, sugar beet and sugarcane. About 30 percent of the world's commercially available maize and about 80 percent of the soybean are GMOs.[64] Most GM maize and soybean varieties, like other GMOs, are resistant to certain herbicides and/or insect pests.[65] GM sugar beet is widely grown in North America, but is not grown in Europe.[66] In 2018 limited amounts of GM sugarcane were cultivated for the first time, in Brazil.[67]

6.7 Textiles, hide/skins, and leather

The requirements in this section concern all components of textiles, hides/skins or leather, hereafter called "textile elements" or "textile types".

6.7.1 Requirements that apply irrespective of amount in product

The requirements in this section concern all parts of textiles, hides/skins, or leather, hereafter called "textile elements". For a definition of the term material element, see section 6.2.

O29 Third-party control of test from EN 71 in EU Toy Safety Directive

The following tests for the textile elements used must be submitted for toys or elements of toys:

- **EN 71-3:** Toys – Safety requirements – Part 3: Migration of certain elements

  and

- **EN 71-9:** Toys – Safety requirements – Part 9: Organic chemical substances – Requirement

The requirement applies only to types of toys covered by the standards above.

✉ Test report in relation to EN 71-3 and EN 71-9 for textile elements, showing fulfilment of the requirement. And declaration from the test laboratory confirming conformity with the requirements in EN 71-3 and EN 71-9 for the types of toys for which the application is being made. The analysis laboratory must meet the requirements in Appendix 2.

[60] Catacora-Vargas G (2011): Genetically Modified Organisms – A Summary of Potential Adverse Effects Relevant to Sustainable Development. Biosafety Report 2011/02, GenØk – Centre for Biosafety.
[61] Kolseth et al (2015) Influence of genetically modified organisms on agro-ecosystem processes. Agriculture, Ecosystems and Environment. 214 (2015) 96–106.
[62] Fischer et al. (2015) Fischer et al. (2015): Social impacts of GM crops in agriculture: a systematic literature review. Sustainability 7:7.
[63] Catacora-Vargas G et al. (2018): Socio-economic research on genetically modified crops: a study of the literature. Agriculture and Human Values 35:2.
[64] ISAAA (2019) Brief 54: Global Status of Commercialized Biotech/GM Crops: 2018. http://isaaa.org/resources/publications/briefs/54/default.asp (2020-04-21)
[65] Waltz E (2011) Amylase corn sparks worries. Nature Biotechnology 29:294. https://doi.org/10.1038/nbt0411-294 (2020-04-21)
[66] Fernandez-Cornejo J, Wechsler S, Milkove D (2016) The Adoption of Genetically Engineered Alfalfa, Canola, and Sugarbeets in the United States. EIB-163, USDA, Economic Research Service November 2016.
[67] www.reuters.com/article/brazil-sugarcane-ctc/brazil-sugar-mills-start-genetically-modified-cane-plantation-idUSL8N1QK5VD (2020-04-21)

Background to the requirement
The requirement has been made more specific in this generation of the criteria.

The purpose of the requirement is to ensure that tests in accordance EN 71-9 have actually been performed and that children are not exposed to the effects of harmful substances in toys. Test reports in accordance EN 71-9 are to be submitted as documentation, showing which tests have been completed, the results and so on. In addition, the test laboratory must confirm compliance with the requirements in EN 71-9 for the types of toys for which the application is being made. A simple statement of compliance with EN 71-9 is not sufficient documentation, as the aim of the requirement is to ensure that tests have been completed and comply with the requirements in EN 71-9. The declaration of compliance with the requirements in EN 71-9 is used merely to help with the processing of the case.

EN 71-9: Toys – Safety requirements – Part 9: Organic chemical substances – Requirement.

Textiles in EN 71-9 include woven or knitted textiles and non-woven fibre materials (e.g. felt).

For textiles and leather, EN 71-9 sets requirements concerning selected substances in the following substance groups:

- Flame retardants
- Dyes
- Primary aromatic amines
- VOC migration (polymers for coating)
- VOC inhalation
- Preservatives
- Plasticisers (polymers for coating)

EN 71-9 applies to the following types of toys, where they contain textile or leather:

- Toys or accessible parts of a toy with a mass of 150 g or less for children under the age of 3 that are intended for play with the hands
- Toys to wear over the mouth or nose
- Toys that children can crawl/get into

O30 Ecolabelled textiles, hide/skins and leather

If a textile element is certified with one of the ecolabels below, it is exempted from the stated requirements.

- Nordic Swan Ecolabelled textile elements are exempted from requirements O32, O33, O34 and the requirements in section 6.7.2.
- EU Ecolabelled textile elements are exempted from the requirements in section 6.7.2.
- GOTS certified textile elements are exempted from requirement O33 and the requirements in section 6.7.2.

✉ The documentation must include the trade name and the licence number for the Nordic Swan Ecolabel or EU Ecolabel licence and the transaction certificate for GOTS. A declaration must also be given that Ecolabelled textile elements have not been subsequently processed.

Background to the requirement

The requirement has been amended in this generation of the criteria. GOTS certification has also been included in the requirement.

Both the Nordic Swan Ecolabel and the EU Ecolabel's criteria for textiles cover the whole life cycle and set requirements in areas where ecolabelling can make a difference. Textiles, hide/skins and leather that have a licence for these criteria therefore meet ambitious requirements concerning the environment, health and quality, and so do not need other documentation in order to be used in a Nordic Swan Ecolabelled toy. GOTS sets equivalent requirements concerning environmental and health impacts over the whole of the textile's life cycle and therefore can also be used.

O31 Oeko-Tex certified textiles, hide/skins, and leather

Textile elements (see definition in section 6.2) must have the following certification:

- Oeko-Tex Standard 100 Class I Baby.

  or

- Leather Standard by Oeko-Tex Class I Baby.

A declaration must also be given that textile elements have not been subsequently treated.

The following are exempted:

Textile elements with which the child will not come into contact during normal or expected use of the toy, and where the textile element makes up less than 5% by weight of the toy.

✉ Documentation showing that the textile element has a valid certificate for Oeko-Tex 100 Class I Baby.

✉ Declaration from the applicant that the textile element has not been treated with chemicals after certification.

Background to the requirement

The requirement is new in this generation of the criteria.

The requirement is included to ensure that even very small textile elements meet the basic chemical requirements, without creating an excessive burden of documentation.

Oeko-Tex Standard 100 requires testing for substances that are harmful to health. There are several classes of certification, with Class I Baby setting the strictest requirements concerning content of the tested substances. The certification ensures that textile elements meet basic chemical requirements.

O32 Hides/skins and leather – Origin

Only the use of raw animal hides and skins originating from the production of milk, wool and/or meat/fish production is permitted.

Only raw hides and skins from the following animals are permitted: fish*, sheep, goats, cows, horses, pigs, elk, deer and reindeer.

** Fish leather from fish on the IUCN Red List of Threatened Species[68] is not accepted.*

[68] The IUCN Redlist, https://www.iucnredlist.org/

✉ The applicant must submit a declaration from the leather producer or leather supplier, confirming that the raw hides/skins used derive from animals raised for milk, wool and/or meat/fish production.

Background to the requirement
The requirement is new in this generation of the criteria.

The requirement has been set to ensure the use of raw hides that are a by-product of meat/milk/wool production. This reduces the environmental impact of livestock farming and ethically it also makes good sense that the leather and hides/skins produced make use of raw hides that are by-products of meat/milk/wool production. The requirement now also permits fish leather, as long as it does not come from the *IUCN* Red List of Threatened Species (https://www.iucnredlist.org). Fish leather must meet the same requirements as other types of hide/skin and leather.

O33 Textile – Formaldehyde

The amount of free and partly hydrolysable formaldehyde in the final textile must not exceed 16 ppm.

The content of formaldehyde must be tested in accordance with standard EN ISO 14184-1.

The following are exempted:

Textile elements (*see definition in section 6.2)* with which the child will not come into contact during normal or expected use of the toy, and where the textile element makes up less than 5% by weight of the toy.

✉ Test report showing that the requirement is fulfilled. The analysis laboratory must meet the requirements in Appendix 2.

✉ A certificate for Oeko-Tex 100 Class I Baby or GOTS can also be used as documentation.

Background to the requirement
The requirement has been tightened from 20 ppm to 16 ppm.

Formaldehyde is classified as hazardous to health, due to being carcinogenic and irritating to the eyes, throat, and skin. Formaldehyde residues in textiles can often originate from finishing with anti-crease agents. A certificate for Oeko-Tex 100 class I Baby (> 16 mg/kg) and for GOTS (> 16 mg/kg) may be used as documentation, even though Oeko-Tex uses the test standard Japanese Law 112. Oeko-Tex, GOTS and the EU-Ecolabel accept higher formaldehyde emissions for certain types of textile. The EU-Ecolabel has a requirement level of max. 16 ppm for products aimed at children under 3 years old and products in direct contact with the skin. Oeko-Tex 100 class I Baby also has requirement level of 16 ppm.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[69], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations. Requirement O33 covers substances for which there are requirements in Appendix C as of March 2020:

[69] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

- Directive (EU) 2019/1929 concerning Formaldehyde:
  Formaldehyde classifications include H350 and H341. See also requirements O7, O9, O20, O23, O34 and O78.

O34 Hides/skins and leather – Formaldehyde

The amount of free and partly hydrolysable formaldehyde in the final hide/skin and leather must not exceed 20 ppm.

The content of formaldehyde must be tested accordance with EN ISO 17226-1 or 2.

The following are exempted:

Textile elements* with which the child will not come into contact during normal or expected use of the toy, and where the textile element makes up less than 5% by weight of the toy.

* See the definition of material element in section 6.2.

✉ Test report showing that the requirement is fulfilled. The analysis laboratory must meet the requirements in Appendix 2.

✉ A certificate for Leather Standard by Oeko-Tex Class I Baby can also be used as documentation.

Background to the requirement

The requirement is new in this generation of the criteria and has been set to limit exposure to formaldehyde, which is classified as carcinogenic. The content of formaldehyde in the finished hide and leather must not exceed 20 ppm. The requirement levels are identical with the formaldehyde requirements for the EU Ecolabel for Footwear and the Japanese label Japan Eco Leather.

In Leather Standard by Oeko-Tex, the formaldehyde level must be no more than 10 ppm for baby products, i.e. Leather Standard by Oeko-Tex Class I Baby.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[70], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations. Requirement O34 covers substances for which there are requirements in Appendix C as of March 2020:

- Directive (EU) 2019/1929 concerning Formaldehyde:
- Formaldehyde classifications include H350 and H341. See also requirements O7, O9, O20, O23, O33 and O78.

O35 Hides/skins and leather – Chromium, cadmium, and lead

The content of chromium (total) in the final treated leather or hide/skin (including finishing) must be less than or equal to 0.1% (mass of chromium per total dry weight of leather or hide/skin), in line with EN ISO 5398.

There must be no chromium (VI) present in the final treated leather or hide/skin (including finishing), in accordance with EN ISO 17075 (detection limit of 3 ppm) or equivalent.

[70] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

Cadmium and lead must not be present in the finished hide/skin or leather. The content of cadmium and lead is to be tested using the test method AAS, ICP-OES or ICP-MS (detection limit 10 ppm).

The following are exempted:

Textile elements (*see definition in section 6.2)*, with which the child will not come into contact during normal or expected use of the toy, and where the textile element makes up less than 5% by weight of the toy.

✉ The applicant must submit a test report for both chromium (total) and chromium (VI), demonstrating fulfilment of the requirement. The analysis laboratory must meet the requirements in Appendix 2.

✉ The applicant must submit a test report for cadmium and lead, demonstrating fulfilment of the requirement. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement has been tightened to also include chromium (total) plus cadmium and lead.

Chromium (total) must be less than or equal to 0.1%, measured as mass of chromium per total dry weight of leather or hide/skin. The requirement concerning the presence of chromium (VI) was also part of the previous generation of the criteria. Regulation (EU) No 301/2014 adds a chromium (VI) restriction to Annex XVII of Regulation (EC) No 1907/2006 (REACH)[71]. Under this restriction, leather elements that come into contact with the skin must not contain chromium (VI) at a level of 3 mg/kg (3 ppm) or more.

The EN ISO 17075 standard recommends a detection limit of 3 ppm. The requirement here in these criteria goes further than the EU legislation by requiring testing and verification as the means of documentation.

Leather products can release Cr (VI) compounds, which is a problem because hexavalent chromium compounds are contact allergens. Cr (VI) is considered one of the most widely known allergens. Hexavalent chromium (Cr (VI)) is not used in the tanning industry and has no purpose in the tanning process. Chromium (III) salts may, however – under certain conditions – be converted into Cr (VI) compounds[72].

Whichever tanning process is used, it is relevant to ensure a low level of chromium and particularly chromium (VI) in the finished leather. Standard ISO EN 15987 defines different types of tanning and for “chromium-free tanning” permits up to 0.1% total chromium in the finished leather. “Vegetable tanning” is permitted up to a total of 0.3% tanning metals (Cr, Al, Ti, Zr, Fe) in the leather. The EU’s Best Available Techniques (BAT) Reference Document for the Tanning of Hides and Skins does not declare a particular tanning process to be a BAT. Each process has different key environmental and health aspects.

The most widely used tanning agent is chromium sulphate. Around 80-90% of global leather production uses chromium (III) salts in the tanning process.

[71] Entry 47, Chromium (VI) compounds https://echa.europa.eu/documents/10162/1f775bd4-b1b0-4847-937f-d6a37e2c0c98

[72] Survey and health assessment (allergies only) of chromium in leather shoes

The rest of the leather industry tends to use a vegetable, aldehyde, or mineral tanning process. The choice of tanning technology depends largely on the properties required in the finished material, cost, the production facilities available and the type of raw material being processed. Because of its particular properties vegetable tanned leather is often used for shoe soles and other hard leather products.

Heavy metals such as cadmium and lead can also be found in hides/skins and leather. Lead occurs most often due to contaminants in the chromate during chromium tanning. The requirement is set to ensure that there is no cadmium and lead in the finished hides/skins or leather.

A Leather Standard by Oeko-Tex Classe I Baby certificate cannot be used as documentation for this requirement, since the Leather Standard by Oeko-Tex sets requirements for extractable metals, while the requirement here applies to the metal content.

O36 Recycled textiles, hide/skins, and leather – Sources

Recycled textile, hide/skin and leather materials may be used for the whole or part of the product. To avoid contamination with undesirable substances from the original use of the textile, the following shall be met:

- Recycled material is not from professional workwear for industry or materials previously used for cleaning.
- Recycled materials must not contain plastic print (e.g. PVC), coatings or details.
- Recycled textiles must originally have been ecolabelled with the Nordic Swan Ecolabel, the EU Ecolabel or GOTS, or have Oeko-Tex 100 Class I Baby certification.
- Recycled hides/skins and leather must meet requirement O32 Origin of hides/skins and leather, and requirement O35 Chromium, cadmium and lead content in leather and hide/skin. Recycled hides/skins and leather that originally carried the Nordic Swan Ecolabel are exempted from this requirement.

All other requirements in section 6.7 must be fulfilled.

Recycled textiles, hides/skins, leather, and filler materials are defined here as post-consumer materials or pre-consumer, where it can be documented that the material is a residual material or waste from another business. Fabrics (not fabricated) are only counted as recycled textiles, if it can be documented that more than five years have elapsed since the fabric was originally produced or that they are remains from fabric rolls.

✉ Documentation that the textile, hide/skin, or leather was originally labelled with the ecolabels stated in the requirement or labelled with Oeko-Tex 100 Class I Baby. This may be an original invoice or a label on the textile.

✉ Declaration that recycled material from professional workwear for industry or from cleaning cloths has not been used, and that the material does not contain PVC, for example in print, coatings, or details.

Background to the requirement

The requirement is new in this generation of the criteria. This requirement applies only to recycled textiles, hides/skins, and leather. Recycled fibre has its own requirements.

Nordic Ecolabelling wishes to promote the recycling of textiles, hides/skins, and leather. However, to prevent the spread of substances that are harmful to health and the environment, the recycled textile, hide/skin, and leather elements used must meet the requirements. Recycled textile elements may contain residues of additives from previously used dyes, pesticides from cultivation, biocides used during transport, and so on.[73] Even though the textile may have been washed several times, there can still be undesirable chemicals in the recycled textile elements. Therefore, there is a requirement concerning the source of the recycled textile elements.

Newly produced elements of the product and details such as buttons and zippers must meet the relevant requirements in the criteria.

If the recycled material or the finished product is subject to additional processing with chemical products (e.g. dyes, printing, finishing, etc.), the requirements for the relevant chemicals in section 6.7.2 must be fulfilled and documented. Recycled textiles, hides/skins or leather that are not further processed using chemicals do not need to meet the requirements concerning chemicals used in textile, hide/skin, and leather production.

6.7.2 Textile elements constituting more than 5% by weight of the toy

The following requirements apply to textile elements that constitute more than 5 wt% of the toy.

For a definition of the terms material element and type, see section 6.2.

O37 Halogenated flame retardants

Halogenated flame retardants must not be present[1] in textile elements – not in the actual textile fibre or added to the textile.

[1] *See the definition of ingoing substances in section 6.2.*

✉ Declaration from the manufacturer/supplier of the material showing compliance with the halogenated flame retardants requirement.

Background to the requirement

The requirement is new in this generation of the criteria.

The requirement has been set to ensure that all textiles found in Nordic Swan Ecolabelled toys are free from halogenated flame retardants such as chloroparaffins or brominated flame retardants.

Safety standard EN 71-9 contains requirements for toys with textile elements that are intended for children under the age of 3. One of the requirements is to test for TCEP and tri-o-cresyl phosphate (CAS no. 78-30-8), with set "action limits", i.e. points at which the substances should not be used or found during testing of the toy.

[73] IKEA and H&M analyze the content of recycled fabrics, article 29 Oct 2019 on Treehugger.com https://www.treehugger.com/sustainable-fashion/ikea-and-hm-analyze-content-recycled-fabrics.html?utm_source=TreeHugger+Newsletters&utm_campaign=9cd1c025b2-EMAIL_CAMPAIGN_11_16_2018_COPY_01&utm_medium=email&utm_term=0_32de41485d-9cd1c025b2-243762625

Brominated flame retardants are widely used, particularly in Europe[74]. Several certification schemes have a focus on flame retardants, but the decisions on which to exclude can vary. For this reason, a ban on the whole group of halogenated flame retardants has been introduced as a separate requirement here.

For more background see requirement O8.

O38 Chemicals overview

All chemicals* used in textile elements shall be stated in an overview and documented with safety data sheets for the various processes which the textile undergoes after fibre production, including wet processes (such as washing, bleaching and dyeing), finishing, printing, coating, etc.

All chemical products shall be stated and documented with a safety data sheet. A collective list or separate lists shall be drawn up for each production process and/or supplier.

The following information shall be submitted for each chemical product:

- trade name
- the function of the chemical
- the process step in which the chemical product is used
- the supplier/manufacturer using the chemical product

***** *The requirement applies to all chemicals used in the manufacture of the textile after fibre production, including chemicals used for washing, bleaching, dyeing, printing, and finishing processes such as coating, lamination or gluing. Chemicals used for carding, spinning, weaving, knitting, wastewater treatment or maintenance of production equipment are exempted from the requirements.*

✉ List of chemicals for every production process and/or supplier.
✉ For each chemical: A safety data sheet (in accordance with Annex II of the REACH Regulation (EC) No 1907/2006 and classification in accordance with Regulation (EC) No 1272/2008).

Background to the requirement

To gain an overview of which chemicals are used in the various processes after fibre production, the criteria require the submission of a list of all the chemicals used.

The requirement applies to all chemicals used in the manufacture of the textile after fibre production, including chemicals used for washing, bleaching, dyeing, printing, and finishing processes such as coating, lamination, or bonding. Chemicals used for carding, spinning, weaving, and knitting are not covered by the requirement. Chemicals used in wastewater treatment plants or for the maintenance of production equipment are also exempted from the requirement.

Examples of chemicals that are subject to requirements include softeners, bleaching agents, pigments and dyes, stabilisers, dispersants, and other auxiliary chemicals.

O39 Classification of chemical products

The requirement concerns all chemicals covered by requirement O38.

[74] Survey, emissions and health assessment of chemical substances in baby products, Danish Environmental Protection Agency, 2008.

Chemical products must not have any of the classifications set out in the table below.

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic acute 1 Aquatic chronic 1 Aquatic chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3	H300 H310 H330 H301 H311 H331
Specific target organ toxicity	STOT SE 1 STOT RE 1	H370 H372
Sensitising (allergenic)	Resp. sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334* H317*

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

** Non-disperse dyes are exempt from the prohibition of H334 and H317, provided that non-dusting formulations are used or that automatic dosing is used.*

☒ Safety data sheet for the chemical product in accordance with current European legislation.

☒ Declaration from the chemical manufacturer/supplier that the requirement has been fulfilled.

☒ For exempted non-disperse dyes: Declaration that non-dusting formulations of these are used or that automatic dosing is used.

Background to the requirement

The requirement has been tightened since the previous generation of the criteria, such that it now includes more chemical products used in the textile production, where the requirement previously only covered dyes, pigments, and auxiliary chemicals. The requirement has also been expanded to exclude the classification Reprotoxic Lact. H362.

Another addition is the exemption of the allergy classifications H334 and H317 for dyes that are not disperse dyes. Since disperse dyes are not covalently bonded to the textile fibre, their colour fastness will often be lower. There is therefore judged to be a greater risk of exposure to disperse dyes. As a consequence, stricter requirements are set for disperse dyes classified as allergenic[75].

[75] JRC Technical Reports, Revision of the European Ecolabel and Green Public Procurement (GPP) Criteria for Textile Products, Nov 2013, page 304: http://ec.europa.eu/environment/ecolabel/documents/140124%20Ecolabel%20Textiles_Technical%20report%20final.pdf

The requirement applies to all chemicals used in the manufacture of the textile after fibre production, including chemicals used for washing, bleaching, dyeing, printing and finishing processes such as coating, lamination or gluing. Chemicals used for carding, spinning, weaving, knitting, wastewater treatment or maintenance of production equipment are exempted from the requirements.

For more background on this requirement, see requirement O6.

6.7.3 Requirements that apply to textile elements constituting more than 30% by weight of the toy

The requirements in this section apply to all textile elements that constitute more than 30% by weight of the toy. See the definition of material element in section 6.2.

O40 Bleaching agents

Chlorinated substances shall not be used as bleaching agents. The requirement applies to all types of textile processes, including bleaching of yarn, fabric, or the finished textile.

Declaration from the producer of the yarn, fabric or finished textile that the requirement is fulfilled.

Background to the requirement

The requirement is new in this generation of the criteria and excludes chlorine treatment of the fibre.

Chlorinated bleaching agents are environmentally hazardous and are therefore not permitted. The use of chlorinated bleaching agents has been reduced in the industry and alternatives are available, such as hydrogen peroxide (H2O2)[76].

6.7.4 Fibre requirements – apply to textile types constituting more than 30% by weight of the toy

The requirements in this section apply to all textile types* that constitute more than 30% by weight of the toy.

The requirements concerning fibre cover the most common fibre types used in toys, with the intention of promoting the variants of each individual fibre type with the best environmental profile.

Filler materials must meet the requirements associated with the relevant fibre in this section. If chemical products are used, the requirements in section 6.7.2 are to be fulfilled and documented.

Recycled fibre is not subject to any requirements concerning chemicals used in the actual recycling processes. If the recycled material, fabric or finished product is subject to additional processing with chemical products, the requirements in section 6.7.2 must be fulfilled and documented.

* *See the definition of material type in section 6.2.*

O41 Cotton fibres

Cotton and other natural seed fibres of cellulose (including kapok) must be organically cultivated* or recycled**.

[76] EU Ecolabels bakgrunnsdokument, 2007

** Organic cotton means cotton fibre that is certified as organic or transitioning to organic according to a standard approved in the IFOAM Family of Standards, such as Regulation (EU) 2018/848, USDA National Organic Program (NOP), APEDA's National Programme for Organic Production (NPOP), China Organic Standard GB/T19630. Also approved are GOTS and DEMETER and certification as "transitioning to organic cultivation". The certification body must have the accreditation required for the standard, such as ISO 17065, NOP or IFOAM.*

*** Recycled fibres or materials: Pre-consumer or post-consumer recycled raw materials, see the definition in the ISO 14021 standard. Both mechanically and chemically recycled fibres are included. See the definitions in section 6.2 for more details.*

☒ Organic cotton: Valid certificate showing that the cotton in the Nordic Swan Ecolabelled product was organically cultivated in line with the standards in the requirement. If the supplier is the holder of GOTS certification, the requirement must be documented with a transaction certificate showing that the goods supplied are GOT certified.

☒ Recycled fibres: Fulfilment of the requirement is documented for recycled fibre with either a) and/or b) below:
a) Certificate showing that the raw material is 100% recycled (post and / or pre-consumer) with Global Recycled Standard certificate 4.0 (or later versions), or other equivalent certification approved by Nordic Ecolabelling.
b) Present documentation demonstrating that the recycled fibre was purchased as 100% recycled (post and / or pre-consumer) and state the supplier.

Background to the requirement

The requirement has been changed in this generation of criteria by allowing recycled fibres as well.

The growing and harvesting of cotton is associated with serious environmental and health problems. This is due largely to the use of chemicals such as pesticides and fertilisers in the cultivation, but other factors such as water use (irrigation or rainwater), monoculture and land use contribute to the overall environmental impact[77]. There are several ways to reduce the environmental and health impact of cotton production.

The environmental impact can also be reduced through organic cultivation, which does not use synthetic pesticides and fertilisers, and does not permit genetically modified cotton. One of the environmental problems that organic production does not resolve is the issue of irrigation. Much of today's organic cultivation takes place in areas where rainwater is the main water source, something that reduces the problems associated with water consumption[78]. Although organic production does not necessarily deliver reduced water consumption, the quality of run-off water is significantly better for both people and the natural environment. It is difficult to say whether there is any difference in yield when comparing conventional and organic cotton production. One of the reasons for this is that there are already major yield variances within the individual systems.

[77] Revision of the European Ecolabel and Green Public Procurement (GPP) Criteria for Textile Products – Technical report and criteria proposal, Working document, European Commission, Joint Research Centre Institute for Prospective Technological Studies (IPTS) 2013.
[78] "The sustainability of cotton – consequences for man and the environment", Kooistra K., Termorshuizen A and Pyburn R., Wageningen University & Research, report no. 223, April 2006.

It is also possible for Nordic Swan Ecolabel toys to contain recycled cotton fibre. This is cotton fibre that is recovered from used clothing and textiles from consumers or industrial waste (post- or pre-consumer textile waste). Industrial textile waste may be surplus material from the production of yarns, textiles, and textile products, for example selvedge from weaving and fabric remnants from factory cutting rooms. The textiles are stripped and pulled into fibres, which are then carded and spun into new yarn. Recycled cotton may also be blended with virgin fibres to improve yarn strength[79].

O42 Synthetic fibre – Fossil origin

Synthetic fibre of fossil origin must comprise a minimum of 50% recycled material.*

The requirement is to be documented with either a or b below:

a) Global Recycled Standard certificate showing that the raw material is recycled, or other equivalent certification approved by Nordic Ecolabelling.

b) By stating the producer of the recycled raw material and documenting that the feedstock used in the raw material is recycled material, see definition in requirement.

**Recycled fibre or material: Pre-consumer or post-consumer recycled raw materials, as defined in standard ISO 14021. Both mechanical and chemical recycling are included. See the definition in section 6.2.*

☒ a) Certificate from an independent certifier of the supply chain (e.g. Global Recycled Standard).
☒ b) Documentation from the producer, showing that the feedstock used in the raw material is recycled material, see definition in requirement.
☒ Calculation showing that at least 50% of the synthetic fibre of fossil origin comprises of recycled material.

Background to the requirement
The requirement is new in this generation of the criteria

Nordic Ecolabelling wishes to support a circular economy by encouraging the use of recycled materials over virgin raw material – in this case crude oil.

Substantial environmental potential is expected in the future with regard to reduce resource consumption and CO2 emissions[80], if the textile industry is able to covert textile waste into new raw materials. However, today fibre-to-fibre recycling remains limited[81], and recycled polymers from other synthetic materials such as plastics are often used today. The requirement therefore accepts both fibre-to-fibre recycling and polymer-to-fibre recycling. Nordic Ecolabelling wishes to stimulate increased use of recycled materials in textile production, thus avoiding the use of virgin fossil materials. It is currently reasonably possible to use recycled material for fibre types such as polyester and polyamide, but the same options are not as widely available for other fibre types as yet (August 2019).

[79] Wikipedia – Cotton recycling, https://en.wikipedia.org/wiki/Cotton_recycling (visited 26.08.2019).
[80] Sandin, G, Environmental impact of textile reuse and recycling – A review, Journal of Cleaner Production Volume 184, 20 May 2018, Pages 353-365.
[81] PULSE OF THE FASHION INDUSTRY, Global Fashion Agenda & The Boston Consulting Group 2017.

The review "Environmental impact of textile reuse and recycling - A review"[82] describes that there is strong support for claims that textile reuse and recycling in general reduce environmental impact compared to incineration and landfilling, and that reuse is more beneficial than recycling. Benefits mainly arise because of the assumed avoidance of production of new products. The is also scenarios under which recycling may not be beneficial, for example in cases where the avoided production processes are relatively clean.

The requirement therefore seeks to encourage fibre types, that are able to make use of recycled feedstock. Advancements are being made in this area all the time and the possibility of using recycled feedstock may therefore change over time.

The requirement states that the feedstock used in the recycled raw material must be traceable. Without traceability, it is difficult to ensure that the material really is recycled. Traceability can be documented with a certificate from a third-party certifier of the supply chain, such as the Global Recycled Standard, for example. The Global Recycled Standard (GRS) is an international, voluntary standard that sets requirements for third-party certification of recycled content and chain of custody in the supply chain. This standard restricts the use of undesirable chemicals in the manufacture of new products, but the standard does not cover chemicals that may enter via the recycled materials, and thus gives no guarantee about what may be present in the finished GRS productO28). Alternatively, traceability may be documented by the producer of the recycled raw material declaring that 100% recycled feedstock has been used[83]. (see more on undesirable chemicals in recycled materials in requirement O46).

Recycled polyester
The main source of recycled feedstock for polyester fibre is currently rPET from used water bottles. PET may be recycled both mechanically and chemically[84]. An LCA conducted for the Nordic Council of Ministers[85] describes the environmental effects of chemical recycling of PET. The analysis shows that chemical recycling is better than incineration of PET, in terms of the following impact categories: climate change, water consumption and total energy consumption, but is worse than incineration when it comes to eutrophication and photochemical ozone creation potential. Several other studies confirm this result. A point is also made about uncertainty linked to data sets originating from the Teijin factory in Japan – one of the only commercial plants in operation today, where waste polyester products are chemically processed into new polyester filament fibres under the brand name ECO CIRCLE™ FIBERS. Teijin also produces rPET from PET bottles for polyester staple fibre and textiles under the brand name EcoPET[86].

[82] Sandin, G, Environmental impact of textile reuse and recycling – A review, Journal of Cleaner Production Volume 184, 20 May 2018, Pages 353–365
[83] Global Recycled Standard http://textileexchange.org/wp-content/uploads/2017/06/Global-Recycled-Standard-v4.0.pdf
[84] Ragaert, K. Mechanical and Chemical Recycling of Solid Plastic Waste, 2017 Waste Management publication
[85] Nordic Council of Ministers (2016). Gaining benefits from discarded textiles: LCA of different treatment pathways
[86] Nordic Council of Ministers (2016). Gaining benefits from discarded textiles: LCA of different treatment pathways

Recycled polyamid
Polyamide (PA, nylon) can be recycled via the mechanical or chemical processing of nylon waste, as happens, for example, in the carpet industry. A comparative LCA study of virgin nylon and recycled nylon for carpet manufacturing, conducted for Shaw Carpets (2010) and reviewed by LBP-GaBi University of Stuttgart, highlights significant environmental benefits from the use of recycled nylon. There are, however, still only a limited number of recycled nylon suppliers. Econyl is one of the leading suppliers, with its nylon 6 for textile production, which uses a chemical process with 100% pre- and post-consumer recycled content[87]. The split is around 50% pre- and 50% post-consumer[88]. There are several examples of textile brands that use Econyl in their polyamide products. An EPD for Econyl declares that ECONYL® polymer is free from substances that are harmful to health and the environment due to being carcinogenic, mutagenic or reprotoxic, allergenic, PBT or vPvB[89].

Recycled polyuretane
Sheico Group, a Taiwanese sportswear manufacturer that also produces spandex, is able to produce 100% spandex with Global Recycled Standard (GRS) certification. Their Sheiflex spandex yarn is made from 100% recycled industrial waste spandex from its own and competitors' production lines. Sheico has managed to recycle spandex following the development of new technology. To ensure that the polymer from the waste yarn is dissolved homogeneously, so the recycled spandex can offer the same stability and quality as virgin spandex, an analysis of the recycled fibre is required in order to adjust the purity and viscosity before spinning[90].

O43 Synthetic fibre – Bio-based origin

Palm oil, soya oil and soya flour must not be used as raw materials for bio-based polymers.

Raw materials used for bio-based polymers must also meet one of the requirements below:

- Be secondary raw materials*.
- Primary raw materials (e.g. maize, sugar cane and sugar beet) must not be genetically modified organisms (GMO)**. Sugar cane must in addition be Bonsucro certified***.

* *Secondary raw materials are defined here as waste products from other production, e.g. by-products such as straw from grain production and by-products from maize. PFAD (Palm Fatty Acid Distillate) from palm oil is not considered a secondary raw material and therefore must not be used.*

** *Genetically modified organisms are defined in EU Directive 2001/18/EC.*

*** *The producer of the bio-based polymer must hold Bonsucro's chain of custody (CoC) certification. The chain of custody must be ensured through mass balance. Book and claim systems are not accepted.*

[87] http://www.econyl.com/textile-yarn/
[88] https://www.bipiz.org/en/advanced-search/aquafil-econyl-or-how-to-produce-nylon-6-from-100-regenerated-materials.html
[89] ENVIRONMENTAL PRODUCT DECLARATION for ECONYL® POLYMER, Aquafil 2013 and updated 2017.
[90] Spandex gets recycled certification, https://www.ecotextile.com/2017110723070/labels-legislation-news/spandex-gets-recycled-certification.html (accessed on 26/02/2019)

The manufacturer of the bio-based polymer must document its purchase of certified raw materials for polymer production, for example in the form of specifications on an invoice or delivery note.

Nordic Ecolabelling may, if appropriate, consider other certification systems.

✉ Declaration from the polymer manufacturer that palm oil (incl. PFAD (Palm Fatty Acid Distillate)), soya oil and soya flour are not used as raw materials in the bio-based polymer.

✉ For secondary raw materials: Documentation from the polymer manufacturer showing compliance with the requirement's definition of secondary raw materials. The chain of custody must be traceable back to the production/process that generated the residual product.

✉ For primary raw materials (incl. certified sugar cane): Declaration from the polymer manufacturer that the raw materials are not GMO under the terms of the requirement.

✉ For sugar cane: Copy of a valid CoC certificate or a certificate number. Documentation such as an invoice or delivery note from the producer of the bio-based polymer, showing the purchase of bio-based polymer from certified raw material in at least the same annual quantity as is used in the production of the bio-based polymer.

Background to the requirement

The requirement is new in this generation of the criteria.

For background see requirement O28.

O44 Wool and other keratin fibres

Any wool and other keratin fibres used must originate from sheep, camels, alpaca, or goats, and must be one of the following:

1. certified organic wool*
2. recycled wool**
3. certified Oeko-Tex Standard 100 class I baby

   or
4. conventional wool with documentation that the requirement below concerning pesticide content in the raw wool is fulfilled.

Pesticide content in conventional wool:

- The total content of the following substances may not exceed 0.5 ppm: ɣ-hexachlorocyclohexane (lindane), α-hexachlorocyclohexane, ß-hexachlorocyclohexane, δ-hexachlorocyclohexane, aldrin, dieldrin, endrin, p,p'-DDT and p,p'-DDD, cypermethrin, deltamethrin, fenvalerate, cyhalothrin and flumethrin.
- The total content of the following substances may not exceed 2 ppm: diazinon, propetamphos, chlorfenvinphos, dichlorfenthion, chlorpyriphos, fenchlorphos, dicyclanil, diflubenzuron and triflumuron.
- The requirement to test for pesticide residues does not apply if documentation can show which farmers produced at least 75% by weight of the wool or keratin fibres, and those farmers can confirm that the substances named in the requirement have not been used in the areas or on the animals in question.

Test method: The tests must be performed in accordance with IWTO Draft Test Method 59: Method for the Determination of Chemical Residues on Greasy Wool or equivalent.

The analysis must be performed on raw wool before wet processing and the test report must be submitted with the application.

Thereafter, the applicant must have a procedure in place for annual testing in line with the requirement and for ensuring compliance with the requirement. Nordic Ecolabelling must be informed if the requirement is not fulfilled.

** Definition of organic wool: wool fibre that is certified as organic or transitioning to organic according to a standard approved in the IFOAM Family of Standards, such as Regulation (EU) 2018/848, USDA National Organic Program (NOP), APEDA's National Programme for Organic Production (NPOP), China Organic Standard GB/T19630. Also approved are GOTS and DEMETER and certification as "transitioning to organic cultivation". The certification body must have the accreditation required for the standard, such as ISO 17065, NOP or IFOAM.*

*** Definition of recycled wool: Pre-consumer or post-consumer recycled raw materials, see the definition in the ISO 14021 standard. Both mechanically and chemically recycled fibres are included. See the definitions in section 6.2 for more details.*

✉ Organic wool: Valid certificate showing that the wool in the Nordic Swan Ecolabelled product was organically cultivated in line with the standards in the requirement. If the supplier is the holder of GOTS certification, the requirement must be documented with a transaction certificate showing that the goods supplied are GOT certified.

✉ Recycled fibre: Fulfilment of the requirement is documented for recycled fibre with either a) or b) below. In addition, recycled wool must live up to requirement O46.

a) Global Recycled Standard certificate showing that the raw material is recycled, or other equivalent certification approved by Nordic Ecolabelling.
b) Present documentation demonstrating that the recycled fibre was purchased as recycled and state the supplier.

✉ Oeko-Tex 100 Class I Baby: Valid certificate

✉ Conventional wool: Declaration from the wool supplier that no mulesing has been used.

✉ Conventional wool: In addition, a test report showing that the pesticide requirement has been fulfilled, plus a written procedure showing how an annual test is performed in line with the pesticide requirement, along with annual in-house checks of compliance with the requirement. Test results are to be archived and kept available for inspection by Nordic Ecolabelling. An alternative to the pesticide test is a confirmation from the farmers that the stated substances are not used, plus an overview of the proportion of wool concerned.

Background to the requirement

The requirement is new in this generation of the criteria. Wool was not previously included in the criteria. The requirement only accepts wool fibre from sheep and other keratin fibres from camels, alpaca, and goats. Angora wool from rabbits is not accepted, for example.

Wastewater from washing wool (scouring) often contains large quantities of pesticides that are used to treat sheep. Pesticide residues can have a significant environmental impact if discharged into the aquatic environment. At the same time, pesticides such as organochlorine compounds, which are known to be toxic, non-readily degradable and bioaccumulative, may also harm the environment while active in the wool. Despite a ban, this type of pesticide is still used[91].

[91] Ravidnran, J. et al., Organochlorine pesticides, their toxic effects on living organisms and their fate in the environment, Interdiscip Toxicol. 2016 Dec; 9(3-4): 90-100

Wool scouring firms and exporters of wool have the greatest scope to control the use of pesticides for ectoparasites by issuing absolute requirements to the wool producers (farmers). This requirement can therefore be documented by at least 75% of the wool farmers declaring that they do not use the above-mentioned pesticides. Organic wool automatically meets the requirement. According to the International Wool Textile Organization (IWTO), in 2015 less than 1% of global sheep farming was organic[92]. Since wool at the same time accounted for only 1% of the total fibre production (figures from 2017), the total amount of organic wool is not that extensive[93]. The judgement has therefore been made that only accepting organic wool would be too tough a requirement.

The Oeko-Tex Standard 100 has requirements for tests for harmful substances, including testing for most of the pesticides for which conventional wool has testing requirements for. See also more background under requirement O31.

Test method IWTO DTM-59: 2009; Method for the Determination of Chemical Residues on Greasy Wool94. This method tests for the presence of four groups of pesticide residues: organochlorine compounds, organophosphates, synthetic pyrethroids and insect growth regulators.

O45 Wool - Ban on mulesing

Surgical mulesing and mulesing performed using liquid nitrogen are not permitted on merino sheep.

✉ Declaration from the merino wool producer, stating that no mulesing has taken place.

Background to the requirement

The requirement is new in this generation of the criteria. Wool was not previously included in the criteria.

Mulesing remains a problem associated with merino wool. Merino sheep are specially bred to have wrinkled skin, so that they produce more wool. This causes urine and faeces to collect around the hind quarters, which attracts flies, who then lay eggs in the folds of skin. Surgical mulesing involves removing wool and skin on the rear end of the sheep to avoid parasites from egg-laying flies. This method is primarily used in Australia. The requirement prohibits this type of treatment and must be documented with a declaration from the wool producer stating that mulesing is not performed.

Australia, the majority of the country's wool producers still use surgical mulesing[95]. There is, however, a move to find alternatives and Australia's newest non-surgical alternative to the surgical method will be available to sheep farmers in 2019. The process involves the use of liquid nitrogen on the rear of the sheep[96].

[92] International Wool Textile Organization (IWTO), "Wool Production." Accessed 07.09.2017: http://www.iwto.org/wool-production
[93] Preferred Fiber & Materials Market Report 2018, Textile Exchange
[94] https://www.iwto.org/sites/default/files/images/iwto_news/image/INDEX-Red%20Book%202015.pdf accessed 13.05.2019
[95] New Zealand Bans Mulesing, article Sept. 2018 at https://www.peta.org.au/news/new-zealand-bans-mulesing/
[96] Non-surgical mulesing alternative for Australasia, article Sept. 2018 at https://www.ecotextile.com/20180911123719/materials-production-news/non-surgical-mulesing-alternative-for-australasia.html

Existing alternatives to surgical mulesing include breeding programmes, which involve selective breeding of sheep with low sensitivity to fly strike. Other measures focus on the actual farming practices, such as adjusting the time of shearing the sheep and the time of lambing, as this also helps to minimise the problem of blowfly strike. Work is also under way on various forms of blowfly control. The combination of these measures is considered to be sufficiently effective, compared to surgical mulesing[97].

O46 Recycled fibres - Test for environmentally harmful substances

This requirement applies to all recycled fibres – both synthetic and natural. Recycled fibres/raw materials for fibre production shall not contain the following substances above the limits stated in the table below.

The requirement must be documented on application, with subsequent annual checks and submitting to Nordic Ecolabelling.

Substance/substance group	Max. limit
Metals	
Chromium total	1.0 mg/kg
Lead	0.1 mg/kg
Mercury	0.02 mg/kg
Cadmium	0.1 mg/kg
Antimony	30.0 mg/kg
Organic tin compounds	
TBT and TPhT	0.5 mg/kg
Total of DBT, DMT, DOT, DPhT, DPT, MOT, MMT, MPhT, TeBT, TeET, TCyHT, TMT, TOT, TPT	1.0 mg/kg
Chlorophenols	
Pentachlorophenol	0.05 mg/kg
Tetrachlorophenol	0.05 mg/kg
Trichlorophenol	0.2 mg/kg
Dichlorophenpol	0.5 mg/kg
Monochlorophenol	0.5 mg/kg
Per- and polyfluorinated compounds	
PFOS, PFOSA, PFOSF, N-Me-FOSA, N-Me-FOSE, N-Et-FOSE	Total < 1.0 µg/m2
PFOA	< 1.0 µg/m2
PFHpA, PFNA, PFDA, PFUdA, PFDoA, PFTrDA, PFTeDA	0.05 mg/kg for each
Other stated per- and polyfluorinated compounds as set out in Oeko-Tex 100 Annex 5.	0.05 or 0.5 mg/kg for each as stated in Oeko-Tex 100
Phthalates	
BBP, DBP, DEP, DMP, DEHP, DMEP, DIHP, DHNUP, DCHP, DHxP, DIBP, DIHxP, DIOP, DINP, DIDP, DPrP, DHP, DNOP, DNP, DPP	Total 0.1 wt%
Flame retardants	
Flame retardants, with the exception of flame retardants approved by Oeko-Tex	< 100 mg/kg for each
Formaldehyde	16 mg/kg
Arylamines with carcinogenic properties stated in Oeko-Tex 100 Annex 5	Total 20 mg/kg
Surfactant, wetting agent residues	
Nonylphenol, octylphenol, heptylphenol, pentylphenol	Total 10 mg/kg
Nonylphenol, octylphenol, heptylphenol, pentylphenol, nonylphenol ethoxylate and octylphenol ethoxylate	Total 100 mg/kg

[97] Mulesing & Welfare at http://blogs.ubc.ca/mulesing/take-home-message/

Dyes	
Cleavable, classified as carcinogenic in Oeko-Tex Annex 5	Total 20 mg/kg
Cleavable aniline as listed in Oeko-Tex Annex 5	Total 100 mg/kg
Classified as carcinogenic in Oeko-Tex Annex 5	50 mg/kg
Dyes classified as allergenic in Oeko-Tex Annex 5	50 mg/kg
Other dyes listed in Oeko-Tex Annex 5	50 mg/kg
Pesticides (for recycled natural fibre)	
Pesticides listed in Oeko-Tex 100 Annex 5	Total 0.5 mg/kg

Test methods: as stated in Testing Methods Standard 100 by Oeko-Tex

✉ Test reports or Oeko-Tex 100 class I certificate showing fulfilment of the requirement. The analysis laboratory must meet the requirements in Appendix 2.

✉ A written procedure showing how an annual test is performed in line with the requirement, along with annual in-house checks of compliance with the requirement. Test results are to be archived and yearly send to Nordic Ecolabelling.

Background to the requirement

The requirement is new in this generation of the criteria. Recycled fibre was not previously included in the criteria.

Fibre from recycled material/fibres is exempted from the requirement for virgin fibre but, instead of meeting the requirements for the type of fibre concerned, must document that the material or fibre is purchased as recycled, and document requirement O46 on testing for content of undesirable substances. There are no requirements concerning chemicals used in the actual recycling processes. If the recycled material/fibre or the finished product is subject to additional processing with chemical products (e.g. dyes, printing, finishing, etc.), the requirements for the relevant chemicals in section 6.7.2 must be fulfilled and documented.

It is important to consider the potential exposure of the user and the environment to undesirable chemicals from recycled material. The requirement covers the chemical substances and substance groups that are at greatest risk of being present in recycled fibre for textile production. Recycled fibre may contain residues of additives from previously used dyes, pesticides from cultivation, biocides used during transport, and so on[98]. This applies to both fibres recovered from used textiles and fibre recovered from products other than textiles. Even if the textile is washed several times, unwanted chemicals may still be present in the recycled fibre. In mechanical recycling processes, all the chemical substances remain in the fibre and may be transferred to the new textile fibre. In the chemical recycling process, some chemical substances remain in the material, and both unproblematic and problematic substances can cause technical interference with the process[99].

[98] IKEA and H&M analyze the content of recycled fabrics, article 29 Oct 2019 on Treehugger.com https://www.treehugger.com/sustainable-fashion/ikea-and-hm-analyze-content-recycled-fabrics.html?utm_source=TreeHugger+Newsletters&utm_campaign=9cd1c025b2-EMAIL_CAMPAIGN_11_16_2018_COPY_01&utm_medium=email&utm_term=0_32de41485d-9cd1c025b2-243762625

[99] Nordic Council of Ministers (2016). Gaining benefits from discarded textiles: LCA of different treatment pathways

It is possible to conduct a spot test for the most relevant substances over a set interval, but since the recycled feedstock may come from multiple sources and can therefore vary a great deal, it is not possible to implement the testing required to identify all the potential "old additives".

Recycled fibre from PET bottles may also contain small amounts of undesirable substances such as antimony and heavy metals, which are derived from labels, adhesives, printing inks and waste from the transport and sorting of the plastic. However, measurements have established that the levels fall well below the limits set for heavy metals in packaging materials in California's Toxics in Packaging Prevention Act of 2006100.

6.8 Filler materials

The requirements in this section relate to filler materials made of down, feathers and other renewable raw materials. Such other renewable raw materials may be seeds, kernels, rice, etc.

Filler materials made of textile fibre must comply with the requirements in section 6.7. E.g. polyester must, among other things, meet requirement O33 concerning formaldehyde.

Filler materials made of plastic (incl. bioplastic), foam, rubber (latex) or silicone must comply with the requirements in section 6.6.

Filler materials made of wood or bamboo (e.g. wood pellets) must comply with the requirements in section 6.11. Requirements O49 and O50 in this section must also be fulfilled.

6.8.1 Requirements that apply irrespective of amount in product

The requirements in this section concern all types of filler material. See the definition of material type in section 6.2.

O47 Feathers and down - ethical requirements.

Use of feathers and down plucked from live birds is prohibited.

Forced feeding of birds is prohibited.

Recycled* down and feathers are exempt from the requirement, but documentation for traceability shall be provided to confirm that the down and feathers are recycled.

** Recycled down and feathers are defined here as post-consumer recycled down and feathers in line with standard ISO 14021.*

☒ Responsible Down standard or a certificate from another standard that fulfils the requirement.

☒ Recycled down and feathers: Recycled Global Standard certificate. Alternatively, documentation from the supplier, confirming that the down/feathers are post-consumer recycled down or feathers.

Background to the requirement

The requirement is new in this generation of the criteria.

[100] M. Whitt, Survey of heavy metal contamination in recycled polyethylene terephthalate used for food packaging, Journal of Plastic Film & Sheeting 2012

Geese are the main target of feather and down plucking from live birds, but the method may also be applied to other duck species. Plucking feathers from live geese for down production is prohibited within the EU, although down and feathers may be "harvested" during the moulting period. The European Food Safety Authority (EFSA) has investigated the issue and concluded that it is possible to pluck down and feathers from live geese without causing pain, as long as it takes place during the moulting period[101]. The problem is that this is not taken into consideration in commercial operations and there are cases where the law is not complied with in all EU member states. The recommendation from EFSA is that goose down and feathers should only be plucked during the moulting period, and that control systems should be created for this. No such control system is in place yet, however, and Nordic Ecolabelling has therefore set a requirement prohibiting the use of down and feathers plucked from live birds. Forced feeding is also not permitted.

Textile Exchange has published a certifiable standard for down and feathers – the Responsible Down Standard (RDS). RDS ensures an independent third-party assessment of the key aspects of breeding and handling the animals and ensures traceability all the way back along the supplier chain. The purpose of the standard is to improve the welfare of the birds, and to provide greater reassurance to retailers and consumers with regard to the purchase of sustainable materials. The aim of the Responsible Down Standard is to ensure that down and feathers do not come from birds that have suffered unnecessary harm. The standard can be applied to both mixed and 100% certified products. However, the end-product can only be labelled as RDS-certified if the down or feathers in the product are 100% certified. The certification ensures, for example, that forced feeding is prohibited and that down and feathers are not plucked from live birds. It also ensures that the birds are not kept in cages and have space to express their natural behaviours. This includes the requirement that there must be nesting areas for female birds102. There is a long list of certified down and feather suppliers, which can be found here: http://responsibledown.org/for-business/find-certified-companies/all-companies-certified-to-the-responsible-down-standard/. These feathers and down are used in various products on the market, such as clothing, duvets, and other textile products with fillings.

O48 Feathers and down - Microbial cleanliness

Feathers and down must comply with the following to document microbial cleanliness:

- oxygen index number of max. 10
- fat content must lie within the range 0.5% to 2.0%

Determined in accordance with the standards:

- EN 12935 Feather and down – Hygiene and cleanliness requirements,
- EN 1162 "Feathers and down. Test methods – Determination of the oxygen index number"
- and EN 1163 Feather and down – Test methods – Determination of the oil and fat content.

[101] EFSA Scientific Opinion on the practice of harvesting (collecting) feathers from live geese for down production, 25 Nov 2010.
[102] http://responsibledown.org/wp-content/uploads/2015/07/TE-Responsible-Down-Standard-2.0-opt.pdf accessed 07.06.2016

✉ Microbial cleanliness: Test report showing compliance with the requirement. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement
The requirement is new in this generation of the criteria.

The standard EN 12935 "Feather and down – Hygiene and cleanliness requirements" sets requirements for the microbial cleanliness of feathers and down as a filling material. It gives the oxygen index number as an indicator of the material's cleanliness. The standard states that an oxygen index number of less than 20 for the filling material is considered hygienically acceptable and so no further analysis of microbial activity in the material is necessary. The Nordic Swan Ecolabel criteria require an oxygen index number of max. 10, representing high microbial cleanliness. EN 12935 refers to EN 1162 "Feathers and down. Test methods – Determination of the oxygen index number" and EN 1163 Feather and down – Test methods – Determination of the oil and fat content.

O49 Other renewable raw materials – Microbial cleanliness

Other renewable raw materials such as seeds, kernels, rice, wood pellets, etc. must meet the following conditions:

- TAMC (total aerobic microbial count): max 10^3
- TYMC (total combined yeasts/moulds count): max 10^2

Determined in accordance with standards:

- Ph. Eur. 5.1.4. Microbiological Quality of Non-sterile Pharmaceutical Preparations and Substances for Pharmaceutical Use,
- Ph. Eur. 2.6.12. – Microbiological Examination of Non-sterile Products: Microbial Enumeration Tests

  and
- Ph. Eur. 2.6.13. – Microbiological Examination of Non-sterile Products: Test for Specified Micro-organisms.

✉ Microbial cleanliness: Test report documenting compliance with the requirement. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement
The requirement is new in this generation of the criteria.

The requirement has been included to ensure that filler materials made from renewable raw materials do not contain levels of bacteria and mould that are harmful to health.

The standard Ph. Eur. 5.1.4. "Microbiological Quality of Non-sterile Pharmaceutical Preparations and Substances for Pharmaceutical Use"[103] is a European standard developed to test non-sterile pharmaceutical products such as natural medicines. This standard refers to the methods Ph. Eur. 2.6.12. "Microbiological Examination of Non-sterile Products: Microbial Enumeration Tests" and 2.6.13. "Microbiological Examination of Non-sterile Products: Test for Specified Micro-organisms" to test for levels of TAMC (total aerobic microbial count) and TYMC (total combined yeasts/moulds count). Standard Ph. Eur. 5.1.4. sets acceptable levels for TAMC at 10^3 and TYMC at 10^2.

[103] Ph. Eur. 5.1.4: https://www.medicinalgenomics.com/wp-content/uploads/2013/04/CFU_Tolerance_European.pdf

These are the same levels that the Danish Environmental Protection Agency recommends for cosmetic rinse-off products[104].

O50 Chemical additives and treatments

All chemical additives and treatments used on feathers and down shall comply with the requirements in section 6.7.2.

Other renewable raw materials must have no chemical additives or chemical treatments.

Other filler materials must meet the chemical requirements described in the section for the relevant material type (see references in the introduction to section 6.8)

✉ Feathers and down: Documentation as set out in the requirements in section 6.7.2.

✉ Other renewable raw materials: Declaration from the applicant that no chemical additives or chemical treatments have been used.

Background to the requirement

The requirement is new in this generation of the criteria and has been set to ensure that filler materials contained no hazardous substances. Feathers and down are washed to achieve cleanliness. To ensure that no hazardous substances are used for washing, impregnation or other chemical treatments of feathers and down, any chemicals used must meet the requirements in section 6.7.2.

Chemical treatments or additives are unnecessary for other renewable raw materials (e.g. seeds, kernels, rice, etc.) and so are prohibited in the requirement.

6.9 Metal

The requirements in this section concern material elements and types made of metal. See the definition of the terms material element and metal type in section 6.2.

6.9.1 Requirements that apply irrespective of amount in product

The requirements in this section concern all product elements made of metal. See the definition of material element in section 6.2.

O51 Copper, tin, lead, and cadmium

Components made of copper, tin, lead, and cadmium must not be used in the toy.

✉ Declaration from the applicant that these metals are not used.

Background to the requirement

The requirement is new in this generation of the criteria.

Copper, tin, lead, and cadmium can create problems for the recycling of steel[105] and are therefore prohibited.

Migration of certain heavy metals that are found in small amounts in other metals is covered by requirement O52 concerning testing in accordance with EN 71-3 in the EU Toy Safety Directive.

[104] Danish Environmental Protection Agency, Vejledning til sikkerhedsvurdering af kosmetiske produkter: https://www2.mst.dk/Udgiv/publikationer/2000/87-7944-335-4/pdf/87-7944-335-4.pdf
[105] EU-27 Steel Scrap Specification, May 2007: https://www.euric-aisbl.eu/facts-figures/standards-specifications

O52 Third-party control of test from EN 71 in EU Toy Safety Directive

The following tests from the safety requirements in EN 71 are to be submitted for all the metal materials with which the child may come into contact:

EN 71-3: Toys – Safety requirements – Part 3: Migration of certain elements

Where metal elements have had a surface treatment applied, that surface treatment must also be tested.

✉ Test report in relation to EN 71-3 for metal elements, showing fulfilment of the requirement. Plus, declaration from the test laboratory confirming conformity with the requirements in EN 71-3 for the types of toys for which the application is being made. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement has been made more specific in this generation of the criteria.

EN 71-3: Toys – Safety requirements – Part 3: Migration of certain elements. This standard specifies requirements concerning the migration of certain metals and selenium.

Migration of metals and selenium is to be tested in accordance with the methods described in EN 71-3. EN 71-3 exempts parts that are not accessible or that are too large to fit in the test cylinder. This requirement goes further than the EU Toy Safety Directive and EN 71-3 by not exempting elements that are too large to fit in the test cylinder. In this case part of the metal must be cut off and tested.

The purpose of the requirement is to ensure that children are not exposed to the effects of harmful substances in toys.

Heavy metals have an impact on the environment and several heavy metals are toxic, while some are carcinogenic (see further details below). This makes it relevant to ensure that metal elements used in the product group are free from the heavy metal's chromium, nickel, lead, cadmium, and mercury.

As the product group contains many product types that may consist of many small material elements, a lot of documentation would have to be obtained to cover all metal elements. The requirement is therefore limited to toy types/elements covered by EN-71-3 and metal elements with which the child may come into contact during normal use.

Test reports in accordance EN 71-3 are to be submitted as documentation, showing which tests have been completed, the results and so on. In addition, the test laboratory must confirm compliance with the requirements in EN 71-3. A simple statement of compliance with EN 71-3 is not sufficient documentation, as the requirement applies to more toy types/elements than are covered by EN-71-3. The declaration of compliance with the requirements in EN 71-3 is used merely to help with the processing of the case.

O53 Surface treatment – Chemical products, Classification

Chemical products used for the surface treatment of metal elements in the product must not have any of the classifications listed in the table below.

Surface treatment in the form of metallisation is not covered by this requirement. See instead requirements O56 and O57 Metal coating.

In addition, surface treatments of metal elements must not negatively affect recyclability.

Table: List of non-permitted classifications of chemical product

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic acute 1 Aquatic chronic 1 Aquatic chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3 Acute Tox. 4 Acute Tox. 4 Acute Tox. 4	H300 H310 H330 H301 H311 H331 H302 H312 H332
Specific target organ toxicity	STOT SE 1 STOT RE 1 STOT RE 2 STOT SE 2	H370 H372 H371 H373
Sensitising (allergenic)	Resp. sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

- ✉ Safety data sheet compliance with current European legislation.
- ✉ Declaration from the manufacturer/supplier of the chemical used for surface treatment showing that the requirement is fulfilled.
- ✉ Declaration from the applicant or the manufacturer/supplier of the surface treated metal element, confirming that the surface treatment does not negatively affect recyclability.

Background to the requirement

The requirement has been tightened since the previous generation of the criteria, with the addition of the classifications H400, H410, H411, H420, H362, H371, H373, H317, H300, H301, H311, H331, H302, H312 and H332.

Nordic Ecolabelling strives to ensure that the health and environmental impacts of the products are as low as possible. Hence the inclusion of requirements that prohibit specific classifications relating to the chemical products used in production.

Surface treatment with paint and varnish is vital to the service life and design of most industrially produced items. To achieve specific optical and durability characteristics, surface treatments combine a number of chemical raw materials: pigments, fillers, binders, solvents and additives of various kinds. Some of these substances have adverse environmental and toxicological characteristics.

This applies, for example, to solvents (VOCs or volatile organic compounds), which are found in all water-based paint to a greater or lesser degree.

Various types of surface coating may be relevant for the product group. Overall, water-based paints such as aqueous acrylic, aqueous epoxy and aqueous polyurethane could be used, but spray paint is more and more common. The advantage of spray paint is that it avoids the need for solvents, but in this case more energy is used for the process instead.

There is often a preparatory treatment before the actual surface treatment. The pre-treatment usually has a degreasing function, to ensure better adhesion between the surface (metal) and the following surface coating. Some pre-treatments also have a good barrier effect that combats corrosion[106]. Pre-treatments are not covered by this requirement.

O54 Surface treatment – Ingoing substances, Classification

The ingoing substances[1] used in chemical products for surface treatment must not have any of the classifications listed in the table below.

Surface treatment in the form of metallisation is not covered by this requirement. See instead requirements O56 and O57 Metal coating.

[1] *See the definition of ingoing substances in section 6.2.*

Table: List of non-permitted classifications of ingoing substances in additives

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

✉ Declaration from the manufacturer/supplier of the chemical used for surface treatment showing that the requirement is fulfilled.

✉ Chemical products with a licence for Nordic Swan Ecolabelled Chemical building products automatically fulfil requirements. In such case, product type, manufacturer and licence number must be stated as documentation.

Background to the requirement

The requirement has been tightened since the previous generation of the criteria, with the addition of the classification H362.

For the background to this requirement, see requirement O7.

The requirement in relation to the EU Toy Safety Directive – Appendix C

[106] Kortlægning af substitutionsmuligheder samt sundheds- og miljømæssig vurdering af malingsystemer til industriel overfladebehandling af metal og træ, Danish Environmental Protection Agency, 2011

Requirement O54 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O7.

O55 Surface treatment – Prohibited substances

The requirement concerns all constituent substances[1] in the chemical products used in the surface treatment of the metal. Coatings with metals (metallisation) are exempted from this requirement, but must comply with requirements O56 and O57.

The following substances must not be present[1]:

- Substances on the EU's Candidate List in accordance with REACH, 1907/2006/EC, article 59, section 10 on the European Chemicals Agency (ECHA) website.
- Substances that are assessed by the EU to be PBT substances (persistent, bioaccumulative and toxic substances) or vPvB substances (very persistent and very bioaccumulative) in accordance with the criteria in Annex XIII of REACH.
- Substances that are considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. The list can be found here: http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf

In addition, the following substances and substance groups must not be present[1]. There may be overlaps between the substances on the following item list and the substances or groups of substances of which the properties are listed above:

- Halogenated organic compounds[2] (e.g. organic chloroparaffins, fluorine compounds, halogenated flame retardants, chlorophenols, etc.). The following are exempted:
  - Bronopol up to 0.05 wt%
  - The blend (3:1) of CMIT/MIT (5-chloro-2-methyl-4-isothiazolin-3-one; 2-methyl-4-isothiazolin-3-one) up to 0.0015 wt%
  - IPBC (iodopropynyl butylcarbamate) up to 0.20 wt%
  - Pigment which complies with EU requirements for dyes in plastic materials in contact with food under Resolution AP (89) point 2.5.
- Isothiazolinones (total) at more than 0.05 wt%
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates or other alkylphenol derivatives[3]
- Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)
- Phthalates[4]
- Pigments and additives based on lead, tin, cadmium, chromium (VI), mercury, antimony, arsenic and their compounds
- Volatile aromatic hydrocarbons (VAH)[5]
- Volatile aromatic compounds (VOC) at more than 3 wt%[6]

[1] See the definition of ingoing substances in section 6.2.

[2] Be aware of national legislation concerning PFOA if the product is to be sold/marketed in Norway. In Norway, PFOA is governed by the "Regulation on restrictions to the use of health- and environmentally hazardous chemicals and other products (Product Regulations)", Section 2-32.

[3] *Alkylphenol derivatives are defined as substances released from alkylphenols on degradation.*

[4] *Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).*

[5] *Volatile aromatic hydrocarbons (VAH) are defined as aromatic compounds whose boiling point is max 250°C, measured at a standard pressure of 101.3 kPa.*

[6] *Volatile organic compounds (VOC) are defined as organic substances with an initial boiling point of max 250°C measured at a standard pressure of 101.3 kPa.*

✉ Declaration from the chemical product manufacturer/supplier showing that the requirement is fulfilled.

Background to the requirement
The requirement has been changed in this generation of the criteria.

For the background to this requirement, see requirement O8.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O55 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O8.

O56 Coating with metals (metallisation)

Metal elements shall not be coated with cadmium, chromium, nickel, copper, tin, lead, zinc and their compounds.

However, zinc surface treatment of small metal elements (e.g. screws, bolts, fittings) or other metal elements is accepted, if this is necessary due to extensive physical wear or on safety-related grounds.

For surface treatment with zinc, see also requirement O57.

✉ Declaration from the toy manufacturer describing which parts are surface treated and the type of surface treatment.

Background to the requirement
The requirement has been tightened since the previous generation of the criteria, in that it only permits an exemption for zinc coating and not nickel coating. There are also new requirements concerning facilities that carry out galvanising, see separate requirement O57.

Metals in the Nordic Swan Ecolabelled product must not be coated with cadmium, chromium, nickel, copper, tin, lead, zinc, or their compounds. In exceptional cases, zinc coatings can be accepted on exposed and small metal parts (screws, bolts, mechanisms, etc.) if this is necessary due to extensive physical wear or for safety reasons. The justification for permitting zinc coating is that the product's function depends on critical parts being as durable as possible. For facilities that carry out galvanising, see also requirement O57.

Zinc is an essential metal, since living organisms require zinc. In excessive quantities zinc can be toxic for organisms in the environment and can cause stomach cramps and vomiting, and anaemia after prolonged ingestion. It can also affect rats' ability to reproduce, but it is not known whether it also has this effect on human beings.

However, coating with these metals has adverse effects on human health and the environment. The chemicals that are used have a number of classifications, e.g.

Chromium VI is classified as H317, H400, H410 and H350. Chromium III does not have these effects[107]. Nickel plating salts e.g. NiCl2, are classified as H350, H341 and H360D. The substances in the finished coating are converted into pure metal layers that are not classified. However, nickel is known to cause allergies as small amounts of nickel are released from the coating upon contact with skin[108].

6.9.2 Requirements that apply to metal types constituting over 5% by weight of the toy

The requirements in this section apply to metal types that constitute more than 5 wt% of the toy. See the definition of material type in section 6.2.

O57 Metal coating with metals (metallisation) – Facility that carries out surface treatment with zinc

Metal types that are surface treated with zinc must comply with requirement O56. See the definition of material type in section 6.2.

If the surface treated metal types constitute more than 5 wt% of the toy, the following requirements must be met:

- The facility must be a closed-loop wastewater system, i.e. there are no discharges to recipient watercourses/municipal water treatment plants.
- Residual products from the surface treatment must be sent for recycling or destruction by an operator that is approved for the handling of hazardous waste.

If surface treatment takes the form of electro galvanisation, the following applies:

- Cyanide must not be used in the process baths.
- Passivation baths must be cobalt-free.

✉ Documentation/description demonstrating that the facility is wastewater-free.
✉ State which waste management operator receives residual products, plus description from the supplier of the surface treatment stating what happens with the residual products.
✉ For electro galvanisation: Declaration from the supplier of the surface treatment stating that cyanide is not used in the process baths and that cobalt-free passivation baths are used.

Background to the requirement

The requirement has been tightened compared with the previous generation of the criteria.

The requirement concerning facilities that carry out galvanisation has been tightened, in part to include the stipulation that the process must be wastewater-free. A wastewater-free process means that there are no discharges to any recipient watercourse or municipal water treatment plant. Waste must thus be collected and sent to an approved waste management operator as hazardous waste. A wastewater-free facility requires higher energy consumption, since the process water must be distilled/evaporated, but it is common to install heat exchangers to make full use of this energy. All more modern or updated facilities are wastewater-free.

[107] http://www.syf.se/Filer/Guide_ytbeh_v0.pdf
[108] Shane Donatello, Hans Moons and Oliver Wolf, Revision of EU Ecolabel criteria for furniture products, final technical report, 2017

Wastewater-free facilities will be declared BAT (Best Available Technology) according to the Swedish industry body in its new batch report, due in 2020. There are no major differences across the Nordic region that would make it difficult to implement, according to the industry body.

For more background, see requirement O56.

6.9.3 Requirements that apply to metal types constituting more than 30% by weight of the toy

The requirements in this section apply to metal types that constitute more than 30 wt% of the toy. See the definition of material type in section 6.2.

Small elements such as screws, bolts, fittings, buttons, and suchlike are excluded from the calculation of the wt% of the toy.

O58 Percentage of recycled metal

It is possible to document the percentage of recycled metal using either alternative 1 or 2.

Alternative 1:

70% by weight of aluminium and 70% by weight of steel must be recycled*.

Alternative 2:

Together, aluminium and steel must meet the following requirement for the percentage of recycled* metal:

recycledAl* kgAl + recycledSteel* kgSteel ≥ 0.70*kgAl + 0.70*kgSteel

Where:

kgAl and kgSteel are the weight of aluminium and steel respectively in kg.

recycledAl and recycledSteel are the percentage of recycled aluminium and steel respectively which must be stated as a number between 0 and 1 (corresponding to 0% to 100%).

The smelter must declare the percentage of recycled materials used in production. An annual average for the smelter is accepted.

The supply chain must be stated and there must be traceability all through the supply chain, from the smelter to the finished product, so that the percentage of recycled materials is guaranteed along the entire supply chain.

Information about recycled materials must be shown on the invoice or be documented with a declaration from the supplier about the percentage of recycled materials.

The supplier can confirm the percentage of recycled materials in its products by providing an overview of the quantity of recycled materials purchased and the quantity sold. There must be an agreement between the supplier and the manufacturer of the Nordic Ecolabelled production that the recycled material is sold to the Nordic Ecolabelled production.

** Recycled metal is defined as both pre-consumer and post-consumer, c.f. the definition given in ISO 14021. See definition in section 6.2.*

✉ State the percentage of recycled metal in the product.

✉ A declaration from the smelter of the percentage of recycled metal used in its production (on an annual basis). Supply chain traceability must be documented, e.g. as a flowchart. The percentage of recycled metal in the supply chain must be documented, e.g. with information on the invoice or a declaration from the supplier. The percentage of recycled content for Al can be documented with the certification Hydro Circal.

Background to the requirement

The requirement is new in this generation of the criteria.

Nordic Ecolabelling wants a strict requirement in place for the percentage of recycled metal for products with significant metal content. Nordic Ecolabelling does not believe that the requirement stimulates increased recycling of metal in society to any great extent, nor is that the main purpose of the requirement. A high percentage of metal is already being recycled. However, the figures for how much metal is recycled vary. How much is recycled will depend not just on demand but on other factors too, such as how easy it is to sort and deliver metal waste, and how good end users are at recycling. However, the production of metal, including mining, is associated with major environmental impacts relating to raw material extraction, large quantities of waste, energy consumption and emissions from production. Nordic Ecolabelling has limited opportunity to set criteria for these parameters. Use of recycled metal minimises negative impacts on the environment significantly and is beneficial to the climate. Nordic Ecolabelling can set requirements for using recycled metal. Nordic Ecolabelling is aware that the availability of recycled metal and the traceability can present a challenge. Nevertheless, Nordic Ecolabelling believes that, with the steadily growing global focus on adopting a circular economy approach, this is the way to go. Traceability in the supply chain is a value in itself as well and is important for a number of aspects e.g. it makes it possible to select suppliers based on their environmental practices, workplace conditions, quality and so on. Demand for traceability will hopefully help the industry to place an even greater focus on this. For aluminium, Hydro has launched its own traceability certification system with a minimum of 75% recycled Al, Hydro Circal.[109] There is currently one small facility in Luxembourg that can deliver this. The Azuqueca facility in Spain will start delivering Hydro Circal in 2020 with a production capacity of 25,000 tonnes[110]. The annual industry average for aluminium produced in the EU is approx. 50% recycled, and for aluminium produced outside the EU approx. 40%.

The two steel production processes are Basic Oxygen Furnace (BOF) for which the input is iron ore, and Electric Arc Furnace (EAF) for which the input is mainly scrap steel. The current requirement of 20% recycled metal has no significant impact since all steelworks, including the BOF plants, meet this today. It is therefore necessary to raise the requirement to promote the use of recycled steel and traceability. In practice, this means that steel that should contain more than 20% recycled steel must be produced at plants that use EAF technology. There are steel producers using the EAF process across the whole of Europe[111]. According to the World Steel Association[112] the EU produces 58% of steel using BOF and 41% using EAF technology. Globally, approx. 70% is produced using BOF and 30% using EAF technology.

[109] https://www.hydro.com/en/products-and-services/low-carbon-aluminium/hydro-circal-75r/ (accessed 17 October 2019)
[110] https://www.hydro.com/en/media/news/2018/hydro-to-increase-production-of-post-consumer-recycled-aluminium/
[111] http://www.eurofer.org/About%20us/About%20Steel/EuropeanSteelMap.fhtml
[112] https://www.worldsteel.org/en/dam/jcr:96d7a585-e6b2-4d63-b943-4cd9ab621a91/World%2520Steel%2520in%2520Figures%25202019.pdf

6.10 Paper, paperboard, and cardboard

The requirements in this section concern material elements and types made of paper, paperboard, or cardboard.

Printed matter with a valid licence for the Nordic Swan Ecolabel or the EU Ecolabel automatically meet requirements O60, O61 and O62.

Copy and printing paper with a valid licence for the Nordic Swan Ecolabel or the EU Ecolabel automatically meets requirements O63 and O64.

Sales packaging and user instructions for the toy are not covered by the requirements in this section, but printed matter, boxes and so on that are employed during the use of the toy (e.g. the box for a jigsaw puzzle) are covered by this section. If the box for a board game is used in the game, the box is subject to the requirements in this section.

6.10.1 Requirements that apply irrespective of amount in product

The requirements in this section concern all product elements made of paper, paperboard, or cardboard. For the definition of material element see section 6.2.

O59 Third-party control of test from EN 71 in EU Toy Safety Directive

The following tests for the paper, paperboard and cardboard elements used must be submitted for toys or elements of toys:

EN 71-3: Toys – Safety requirements – Part 3: Migration of certain elements

The requirement applies only to types of toys covered by the standards above.

If the paper, paperboard, and cardboard elements have had a surface treatment applied (e.g. printing), that surface treatment must also be tested.

✉ Test report in relation to EN 71-9 for the paper, paperboard and cardboard elements used, showing fulfilment of the requirement. Plus, declaration from the test laboratory confirming conformity with the requirements in EN 71-3 for the types of toys for which the application is being made. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement has been made more specific in this generation of the criteria. The purpose of the requirement is to ensure that tests in accordance EN 71-3 have actually been performed and that children are not exposed to the effects of harmful substances in toys. Test reports in accordance EN 71-3 are to be submitted as documentation, showing which tests have been completed, the results and so on. In addition, the test laboratory must confirm compliance with the requirements in EN 71-3 for the types of toys for which the application is being made. A simple statement of compliance with EN 71-3 is not sufficient documentation, as the aim of the requirement is to ensure that tests have been completed and comply with the requirements in EN 71-3. The declaration of compliance with the requirements in EN 71-3 is used merely to help with the processing of the application.

EN 71-3: Toys – Safety requirements – Part 3: Migration of certain elements. This standard specifies requirements concerning the migration of certain metals and selenium.

Heavy metals have an impact on the environment and several heavy metals are toxic, while some are carcinogenic (see further details below).

This makes it relevant to ensure that metal elements used in the product group are free from the heavy metal's chromium, nickel, lead, cadmium, and mercury.

O60 Printing and surface treatment – Chemical products, Classification

The requirement covers all chemical products used in printing on or surface treatment of paper, paperboard, or cardboard.

The chemical products used must not have any of the classifications listed in the table below. The chemical product must be classified in accordance with current European legislation.

Table: List of non-permitted classifications of chemical products

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic acute 1 Aquatic chronic 1 Aquatic chronic 2 Aquatic chronic 3 Aquatic chronic 4	H400 H410 H411 H412 H413
Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3	H300 H310 H330 H301 H311 H331
Specific target organ toxicity	STOT SE 1 STOT RE 1	H370 H372
Sensitising (allergenic)	Resp. sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

Exemptions:

- Chemicals for film and printing plate production are exempted from the requirement concerning classification with H411 and/or H412.
- The exemption from the requirement concerning environmental hazard classification applies to products such as printing inks, toners and varnishes that are radiation-cured (e.g. UV inks, UV toners and UV varnishes).
- Adhesive products that contain isocyanates are exempted. However, they may only be used in a closed process with the prescribed protective equipment in accordance with the official requirements.

✉ Safety data sheet for the chemical product in accordance with current European legislation.

✉ Declaration from the manufacturer/supplier of the chemical product used for printing, confirming fulfilment of the requirement.

✉ If adhesive products containing isocyanates are used: Declaration from printing company that the requirement is fulfilled.

Background to the requirement

The requirement has been amended in this generation of the criteria and harmonised with generation 6 of the criteria for Nordic Swan Ecolabelled Printing companies and printed matter (draft criteria out for consultation in spring 2020).

The draft of the criteria for Nordic Swan Ecolabelled Printing companies and printed matter, generation 6, contains exemptions from the requirement that are not found in these criteria for Toys. In Toys, there is a particularly strong focus on children's exposure to substances that are harmful to health, as they are more vulnerable. The judgement has also been made that the range of printing methods and printing chemicals that may be used for toys does not need to be as broad as in the criteria for Printing companies and printed matter, as those criteria have to cover many different types of printed matter. This requirement therefore does not include exemptions for sensitising substances in chemicals for film and printing plate production, and for printing inks, toners and varnishes that are radiation-cured (e.g. UV inks, UV toners and UV varnishes). There are also no exemptions for two-component adhesives, algicides and dampening additives.

For the background to exemptions for adhesive products that contain isocyanates, see requirement O25.

For more background on this requirement, see requirement O6.

O61 Printing and surface treatment – Ingoing substances, Classification

The requirement covers all ingoing substances[1] in the chemical products used in printing on or surface treatment of paper, paperboard, or cardboard.

Table: List of non-permitted classifications of ingoing substances

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

[1] *See the definition of ingoing substances in section 6.2.*

Exemption:

Adhesive products that contain isocyanates are exempted. However, they may only be used in a closed process with the prescribed protective equipment in accordance with the official requirements.

✉ Declaration from the manufacturer/supplier of the chemical product used for printing, confirming fulfilment of the requirement.

✉ If adhesive products containing isocyanates are used: Declaration from printing company that the requirement is fulfilled.

Background to the requirement
The requirement concerning the classification of ingoing chemical substances has been changed in this revision of the criteria to harmonise with the requirements set out in generation 6 of the criteria document for Printing companies and printed matter, and to reflect Nordic Ecolabelling's stance on restrictions for CMR substances.

The following classifications have been added and made subject to requirements:

Carc 2. H351, Mut.2 H341, Repr.2 H361, Lact. H362.

PUR or polyurethane adhesive may be used as a single or two-component adhesive and is a variant of hot-melt adhesive that cures permanently through a chemical reaction that involves isocyanates. There is currently no replacement for isocyanates in PUR adhesive, which is why the exemption has been retained. For more background see requirement O25.

For more background on this requirement, see requirement O7.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O61 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O7.

O62 Printing and surface treatment – Other prohibited substances

The requirement covers all ingoing substances[1] in the chemical products used in printing on or surface treatment of paper, paperboard, or cardboard.

The following substances must not be present[1]:

- Substances on the EU's Candidate List in accordance with REACH, 1907/2006/EC, article 59, section 10 on the European Chemicals Agency (ECHA) website.
- Substances that are assessed by the EU to be PBT substances (persistent, bioaccumulative and toxic substances) or vPvB substances (very persistent and very bioaccumulative) in accordance with the criteria in Annex XIII of REACH.
- Substances that are considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. The list can be found here: http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf

In addition, the following substances and substance groups must not be present[1]. There may be overlaps between the substances on the following item list and the substances or groups of substances of which the properties are listed above:

- Halogenated organic compounds[2] (e.g. organic chloroparaffins, fluorine compounds, halogenated flame retardants, chlorophenols, etc.). The following are exempted:
  - Bronopol up to 0.05 wt%
  - The blend (3:1) of CMIT/MIT (5-chloro-2-methyl-4-isothiazolin-3-one; 2-methyl-4-isothiazolin-3-one) up to 0.0015 wt%

  - IPBC (iodopropynyl butylcarbamate) up to 0.20 wt%
  - Pigment which complies with EU requirements for dyes in plastic materials in contact with food under Resolution AP (89) point 2.5.
- Isothiazolinones (total) at more than 0.05 wt%
- Bisphenol A, S and F
- EDTA (ethylene diamine tetra acetate) and its salts
- Sodium and potassium hypochlorite
- Alkylphenols, alkylphenol ethoxylates or other alkylphenol derivatives[3]
- Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)
- Phthalates[4]
- Pigments and additives based on lead, tin, cadmium, chromium (VI), mercury, antimony, arsenic and their compounds
- Volatile aromatic hydrocarbons (VAH)[5]
- Volatile aromatic compounds (VOC) at more than 3 wt%[6]

[1] See the definition of ingoing substances in section 6.2.

[2] Be aware of national legislation concerning PFOA if the product is to be sold/marketed in Norway. In Norway, PFOA is governed by the "Regulation on restrictions to the use of health- and environmentally hazardous chemicals and other products (Product Regulations)", Section 2-32.

[3] Alkylphenol derivatives are defined as substances released from alkylphenols on degradation.

[4] Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).

[5] Volatile aromatic hydrocarbons (VAH) are defined as aromatic compounds whose boiling point is max 250°C, measured at a standard pressure of 101.3 kPa.

[6] Volatile organic compounds (VOC) are defined as organic substances with an initial boiling point of max 250°C measured at a standard pressure of 101.3 kPa.

Exemptions:

EDTA and its salts may be used in chemicals for printing plate production (repro) if the proportion of EDTA and its salts does not exceed 1% of the chemical product.

✉ Declaration from the manufacturer/supplier of the chemical product used for printing, confirming fulfilment of the requirement.

✉ Printed matter with a licence for the Nordic Swan Ecolabel or EU Ecolabel automatically fulfils the requirement. In such case, product type, manufacturer and licence number must be stated as documentation.

Background to the requirement

The requirement has been changed in this generation of the criteria, and the list of prohibited substances/substance groups has been changed and updated to harmonise with the requirements set out in generation 6 of the criteria document for Printing companies and printed matter, and to reflect Nordic Ecolabelling's general stance on restrictions for the substances that are harmful to health and the environment.

Halogenated organic compounds may be used for printing inks, surface treatments and adhesives. Halogenated solvents are volatile organic compounds (VOC) that are undesirable because they are typically harmful to health, often not readily degradable in an aquatic environment and can have negative effects on the planet's ozone layer. In addition, certain halogenated solvents are classified as carcinogenic.

Hypochlorite bleaches are oxidisers. There are two types of hypochlorite bleach used in the pulp and paper industries, examples of which are calcium hypochlorite and sodium hypochlorite. These may also be designated as reactive chlorine compounds and defined as substances that can form persistent organic chlorinated compounds that may be carcinogenic. Some of the compounds formed have been identified, such as chloroform and carbon tetrachloride, while several other by-products have not been identifiable.

EDTA is a complexing agent that is suspected of being able to mobilise heavy metals in certain environments, since it can be a complexing agent for these.

A requirement has been added for butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA) because they are suspected endocrine disruptors and are included on CoRAP's substance evaluation list. Nordic Ecolabelling has chosen not to harmonise the requirement with generation 6 of the criteria for Printing companies and printed matter and has instead created a separate ban on these substances since the end users of toys are a particularly vulnerable target group.

For more background on this requirement, see requirement O8.

The requirement in relation to the EU Toy Safety Directive – Appendix C

This requirement covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O8.

6.10.2 Requirements that apply to paper, paperboard and cardboard types constituting more than 10% by weight of the toy

The requirements in this section apply to paper, paperboard and cardboard types constituting more than 10 wt% of the toy. See the definition of material type in section 6.2.

O63 Fibre raw materials – Prohibited tree species

Species of trees on the Nordic Ecolabel list of protected tree species (www.nordic-ecolabel.org/wood/) must not be used.

✉ Declaration from the applicant/manufacturer/supplier that the requirement is fulfilled.

Background to the requirement

The requirement is new in this generation of the criteria.

For background on this requirement, see requirement O66.

O64 Fibre raw material – Traceability and certification

Species name

The manufacturer/supplier of the paper/paperboard/cardboard must state the name (species) of the fibre raw material used.

Manufacturers/suppliers that only use recycled material* are exempted from this requirement.

Chain of Custody certification

Manufacturers/suppliers of paper/paperboard/cardboard must have Chain of Custody certification under the FSC/PEFC schemes.

This requirement also applies to manufacturers/suppliers that use recycled material*.

Certified fibre raw material

At least 70% of the fibre raw material used in paper/paperboard/cardboard must be certified as originating from sustainable forestry under the FSC or PEFC schemes.

The remaining percentage of fibre raw material must be covered by the FSC/PEFC compliance schemes (FSC Controlled Wood/PEFC Controlled Sources).

This requirement also applies to recycled material*.

** **Recycled material:** Pre-consumer or post-consumer recycled raw materials, see the definition in the ISO 14021 standard. See the definitions in section 6.2 for more details.*

Nordic Ecolabelling includes by-products from primary wood processing industries (sawdust, wood chips, shavings, bark etc.) or residues from forestry operations (bark, branches, roots, etc) in its definition of recycled material.

- ✉ Name (species name) of the fibre raw materials used.
- ✉ A valid FSC/PEFC Chain of Custody certificate from the manufacturer/supplier that covers all the fibre raw material in the paper/paperboard/cardboard.
- ✉ If the toy manufacturer is Chain of Custody certified: A manufacturer that has FSC/PEFC Chain of Certification must submit documentation showing compliance with the requirement for the percentage of certified material through the applicant/manufacturer's Chain of Custody account.
- ✉ If a supplier holds Chain of Custody certification, the toy manufacturer must show that it purchases certified fibre raw material. This is to be verified via invoices stating the proportion of certified material purchased.
- ✉ Declaration of compliance with the requirement for the percentage of certified material or recycled material through the manufacturer/supplier's Chain of Custody account.

Background to the requirement

The requirement has been changed in this generation of the criteria. It is now required that all fibre raw material must be covered by Chain of Custody certification, certified, covered by the FSC/PEFC compliance schemes or be recycled material.

For background on this requirement, see requirement O71 Traceability and certification.

6.11 Solid wood and bamboo

The requirements in this section concern material elements and types made of solid wood and bamboo.

Recycled solid wood and bamboo are exempted from requirement O71.

Nordic Swan Ecolabelled durable wood with a valid licence is exempted from requirements O66 and O71.

Chemical products that have a valid licence for Nordic Swan Ecolabelled Indoor paints and varnishes, Nordic Swan Ecolabelled Chemical building products or EU Ecolabelled Indoor and outdoor paints and varnishes are exempted from requirements O68, O69 and O70.

6.11.1 Requirements that apply irrespective of amount in product

The requirements in this section concern all product elements made of solid wood or bamboo. See the definition of material elements in section 6.2.

O65 Third-party control of test from EN 71 in EU Toy Safety Directive

The following tests for the wood and bamboo elements used must be submitted for toys or elements of toys:

EN 71-3: Toys – Safety requirements – Part 3: Migration of certain elements

The requirement applies only to types of toys covered by the standards above.

If the wood and bamboo elements have had a surface treatment applied (e.g. paint, varnish), that surface treatment must also be tested.

✉ Test report in relation to EN 71-9 for the paper, paperboard and cardboard elements used, showing fulfilment of the requirement. Plus, declaration from the test laboratory confirming conformity with the requirements in EN 71-3 for the types of toys for which the application is being made. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement has been made more specific in this generation of the criteria. The purpose of the requirement is to ensure that tests in accordance EN 71-3 have been performed and that children are not exposed to the effects of harmful substances in toys. Test reports in accordance EN 71-3 are to be submitted as documentation, showing which tests have been completed, the results and so on. In addition, the test laboratory must confirm compliance with the requirements in EN 71-3 for the types of toys for which the application is being made. A simple statement of compliance with EN 71-3 is not sufficient documentation, as the aim of the requirement is to ensure that tests have been completed and comply with the requirements in EN 71-3. The declaration of compliance with the requirements in EN 71-3 is used merely to help with the processing of the case.

EN 71-3: Toys – Safety requirements – Part 3: Migration of certain elements. This standard specifies requirements concerning the migration of certain metals and selenium.

Heavy metals have an impact on the environment and several heavy metals are toxic, while some are carcinogenic (see further details below). This makes it relevant to ensure that metal elements used in the product group are free from the heavy metal's chromium, nickel, lead, cadmium, and mercury.

O66 Prohibited tree species

Species of trees on the Nordic Ecolabel list of protected tree species (www.nordic-ecolabel.org/wood/) must not be used.

✉ Declaration from the applicant/manufacturer/supplier that the requirement is fulfilled.

Background to the requirement
The requirement has been changed in this generation of the criteria.

Nordic Ecolabelling prohibits the use of various tree species. Please note that the list of prohibited species is under review and that the requirement will be updated with the latest wording once approved. The text given here is the background to the current list of tree species.

The list is based on tree species that are relevant to the Nordic Swan Ecolabel's criteria, i.e. species that might potentially be included in Nordic Swan Ecolabelled products. The tree species on the list are presented with their scientific name and their most common trade names. The list is not exhaustive, as there may be more scientific names/trade names for the listed tree species than are contained on the list. Based on the precautionary principle, closely related/similar tree species also included on the list.

Criteria for placing a tree species on the list:
- Features on the IUCN Red List of Threatened Species, categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) and relevant tree species that are Near Threatened (NT).
- Features on the CITES tree species list, Appendices I, II and III.
- Derives from unsustainable forestry, for example logging in HCVF, IFL areas in countries/regions with high levels of corruption.

O67 Chemicals in recycled elements

Recycled elements in wood or bamboo must be untreated.

State the previous area of use for the recycled element. Wood from industrial construction must not be used.

✉ Declaration of what the recycled element in wood/bamboo has previously been used for, plus a declaration that it is untreated. Nordic Ecolabelling may require further information if there is any doubt about compliance with the requirement.

Background to the requirement
The requirement is new in this generation of the criteria.

The requirement has been set to maintain a certain amount of control over the type of recycled material used and better control in the drive to ensure that any materials used are free from undesirable substances. Setting a requirement that the wood must be untreated limits the scope to use such wood, but since it is difficult to know what kinds of chemicals have been used, Nordic Ecolabelling wishes to be restrictive. The requirement covers both surface treatment and impregnation with wood preservative.

O68 Surface treatment – Chemical products, Classification

Chemical products used for the surface treatment of the wood and bamboo elements must not have any of the classifications listed in the table below.

Table: List of non-permitted classifications of chemical products

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic acute 1 Aquatic chronic 1 Aquatic chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3 Acute Tox. 4 Acute Tox. 4 Acute Tox. 4	H300 H310 H330 H301 H311 H331 H302 H312 H332
Specific target organ toxicity	STOT SE 1 STOT RE 1 STOT RE 2 STOT SE 2	H370 H372 H371 H373
Sensitising (allergenic)	Resp. sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

✉ Safety data sheet for the chemical product in accordance with current European legislation.

✉ Declaration from the manufacturer of the chemical product used for surface treatment, confirming fulfilment of the requirement.

Background to the requirement

The requirement has been tightened since the previous generation of the criteria, with the addition of the classifications H300, H302, H312, H332, H362, H371, H373 and H317. EUH 059 has been replaced by H420. H412 and H413 have been removed.

Surface coating with paint and varnish is vital to the service life and design of most industrially produced items. To achieve specific optical and durability characteristics surface treatments combine a number of chemical raw materials: pigments, fillers, binders, solvents and additives of various kinds. Some of these substances have adverse environmental and toxicological characteristics.

For more background on this requirement, see requirement O8.

O69 Surface treatment – Ingoing substances, Classification

The ingoing substances[1] used in chemical products for surface treatment must not have any of the classifications listed in the table below.

Table: List of non-permitted classifications of ingoing substances

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

[1] See the definition of ingoing substances in section 6.2.

✉ Declaration from the manufacturer/supplier of the chemical product used for surface treatment, confirming fulfilment of the requirement.

Background to the requirement

The requirement has been tightened since the previous generation of the criteria, with the addition of the classification H362.

For the background to this requirement, see requirement O7.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O69 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O7.

O70 Surface treatment – Prohibited substances

The requirement covers ingoing substances[1] in chemical products for surface treatment.

The following substances must not be present[1]:

- Substances on the EU's Candidate List in accordance with REACH, 1907/2006/EC, article 59, section 10 on the European Chemicals Agency (ECHA) website.
- Substances that are assessed by the EU to be PBT substances (persistent, bioaccumulative and toxic substances) or vPvB substances (very persistent and very bioaccumulative) in accordance with the criteria in Annex XIII of REACH.
- Substances that are considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. The list can be found here: http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf

In addition, the following substances and substance groups must not be present[1]. There may be overlaps between the substances on the following item list and the substances or groups of substances of which the properties are listed above:

- Halogenated organic compounds[2] (e.g. organic chloroparaffins, fluorine compounds, halogenated flame retardants, chlorophenols, etc.). The following are exempted:

- Bronopol up to 0.05 wt%
- The blend (3:1) of CMIT/MIT (5-chloro-2-methyl-4-isothiazolin-3-one; 2-methyl-4-isothiazolin-3-one) up to 0.0015 wt%
- IPBC (iodopropynyl butylcarbamate) up to 0.20 wt%
- Pigment which complies with EU requirements for dyes in plastic materials in contact with food under Resolution AP (89) point 2.5.

- Isothiazolinones (total) at more than 0.05 wt%
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates or other alkylphenol derivatives[3]
- Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)
- Phthalates[4]
- Pigments and additives based on lead, tin, cadmium, chromium (VI), mercury, antimony, arsenic and their compounds
- Volatile aromatic hydrocarbons (VAH)[5]
- Volatile aromatic compounds (VOC)[6] at more than 80 g/l

[1] See the definition of ingoing substances in section 6.2.

[2] Be aware of national legislation concerning PFOA if the product is to be sold/marketed in Norway. In Norway, PFOA is governed by the "Regulation on restrictions to the use of health- and environmentally hazardous chemicals and other products (Product Regulations)", Section 2-32.

[3] Alkylphenol derivatives are defined as substances released from alkylphenols on degradation.

[4] Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).

[5] Volatile aromatic hydrocarbons (VAH) are defined as aromatic compounds whose boiling point is max 250°C, measured at a standard pressure of 101.3 kPa.

[6] Volatile organic compounds (VOC) are defined as organic substances with an initial boiling point of max 250°C measured at a standard pressure of 101.3 kPa.

✉ Declaration from the manufacturer/supplier of the chemical product used for surface treatment, confirming fulfilment of the requirement.

Background to the requirement

The requirement has been changed in this generation of the criteria.

The requirement concerning volatile organic compounds (VOC) has been amended in this generation of the criteria. The requirement limit has been changed from 130 g VOC/l to 80 g VOC/l. The level of 80 g VOC/l is identical with the requirement concerning single-component specialist surface treatments and two-component specialist surface treatments in the criteria for Nordic Swan Ecolabelled Indoor paints and varnishes (generation 3) and the EU Ecolabel for Indoor and outdoor paints and varnishes (version 2014).

For more background on this requirement, see requirement O8.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O70 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O8.

6.11.2 Requirements that apply to solid wood and bamboo constituting more than 10% by weight of the toy

The requirements in this section apply to solid wood and bamboo that constitutes more than 10 wt% of the toy. See the definition of material type in section 6.2.

O71 Traceability and certification

Species name

The manufacturer/supplier must state the name (species) of the wood/bamboo used.

Manufacturers/suppliers that only use recycled material* are exempted from this requirement.

Chain of Custody certification

Manufacturers/suppliers of the toy or applicant's/producer's supplier of wood/bamboo must have Chain of Custody certification under the FSC/PEFC schemes.

This requirement also applies to manufacturers/suppliers that use recycled material*.

Certified wood/bamboo

At least 70% of the wood/bamboo used in the toy must be certified as originating from sustainable forestry under the FSC or PEFC schemes.

The remaining percentage of wood/bamboo must be covered by the FSC/PEFC compliance schemes (FSC Controlled Wood/PEFC Controlled Sources).

This requirement also applies to recycled material*.

** **Recycled material:** Pre-consumer or post-consumer recycled raw materials, see the definition in the ISO 14021 standard. See the definitions in section 6.2 for more details.*

Nordic Ecolabelling includes by-products from primary wood processing industries (sawdust, wood chips, shavings, bark etc.) or residues from forestry operations (bark, branches, roots, etc) in its definition of recycled material.

- ✉ Name (species name) of the wood/bamboo used.
- ✉ A valid FSC/PEFC Chain of Custody certificate from the applicant/manufacturer/supplier that covers all the wood/bamboo.
- ✉ If the toy manufacturer is Chain of Custody certified: A manufacturer that has FSC/PEFC Chain of Certification must submit documentation showing compliance with the requirement for the percentage of certified material through the applicant/manufacturer's Chain of Custody account.
- ✉ If a supplier holds Chain of Custody certification, the toy manufacturer must show that it purchases certified wood/bamboo. This is to be verified via invoices stating the proportion of certified material purchased.
- ✉ Declaration of compliance with the requirement for the percentage of certified material or recycled material through the manufacturer/supplier's Chain of Custody account.

Background to the requirement

The requirement has been changed in this generation of the criteria.

Nordic Ecolabelling's forestry requirement focuses on sustainable forestry and the traceability of the wood raw materials. The requirement also includes willow, bamboo and cork. These materials are used in furniture, although they are not very common. There is, for example, FSC certified bamboo.

The many benefits that sustainably managed forests deliver to society include wood for materials and energy, protection against global warming, homes and livelihoods for local communities and indigenous peoples, support of biodiversity and protection of water and soil from pollution and erosion. By setting a requirement that wood raw materials must originate from certified, sustainably managed forests, Nordic Ecolabelling is supporting the move towards more sustainable forestry practices.

Nordic Ecolabelling requires a declaration of the species of wood contained in the Nordic Swan Ecolabelled product. This makes it possible to check the validity of Chain of Custody certificates in the supply chain. The requirement for CoC certification improves the traceability of materials in the supply chain within the guidelines and control systems of the FSC and PEFC. The company's CoC certification proves how certified wood is kept separate from other wood during production, administration and storage and is inspected annually by independent certification bodies. Under this requirement, CoC certification must be held by either the applicant/manufacturer or the supplier of wood raw materials. Nordic Ecolabelling considers it is too strict to require the applicant/toy manufacturer to hold CoC certification. If the applicant/toy manufacturer has CoC certification and is able to label the finished product with the FSC/PEFC logo, there is a requirement for certified wood raw materials to be allocated from the CoC account for the Nordic Swan Ecolabelled product. This ensures that FSC/PEFC credits are used for the Nordic Swan Ecolabelled production and that the credits are removed from the CoC account and are not sold twice. This will stimulate increased demand for certified wood raw materials because more certified wood raw materials must be purchased if the manufacturer wants to label other products, and not just the Nordic Ecolabelled products, with the FSC/PEFC logo. It also means that a Nordic Swan Ecolabelled product can have both the Nordic Swan Ecolabel logo and the FSC/PEFC logo. However, there is no requirement for the applicant/toy manufacturer to have CoC certification. If CoC certification is held by the supplier, the applicant/toy manufacturer must have documentary evidence of purchase of certified raw material in the form of a percentage claim on the invoice, i.e. it must be stated on the invoice that a minimum of 70% certified wood raw material has been purchased. It also allows for exceptions to this to be made for toys.

The requirement has increased the minimum percentage to 70% for all wood species. Previously, this requirement only applied to pine, fir, birch and tropical wood. Tropical wood is now largely covered by the requirement concerning protected tree species. Public sector tenders often require a certification percentage of 70%. The remaining percentage of wood raw materials must be FSC Controlled Wood or wood from PEFC Controlled Sources. The minimum requirement set by FSC and PEFC for the use of their logos on products is also 70%.

6.12 Wood-based panels

The requirements in this section cover wood-based panels such as chipboard, fibreboard (incl. MDF and HDF), OSB (Oriented Strand Board), laminates (plywood and LVL) and solid wood panels (equivalent to non-load bearing glulam panels or hobby panels). The requirements also cover equivalent bamboo products.

Nordic Swan Ecolabelled Construction panels with a valid licence automatically fulfil all requirements here in section 6.12, with the exception of requirements O72 and O73.

6.12.1 Requirements that apply irrespective of amount in product

The requirements in this section concern all product elements* made of wood-based panels.

* *See the definition of material element in section 6.2.*

O72 Third-party control of test from EN 71 in EU Toy Safety Directive

The following tests for the wood-based panels used must be submitted for toys or elements of toys:

EN 71-3: Toys – Safety requirements – Part 3: Migration of certain elements

The requirement applies only to the types of toys covered by the standards above.

If the wood and bamboo elements have had a surface treatment applied (e.g. paint, varnish), that surface treatment must also be tested.

✉ Test report in relation to EN 71-9 for the wood-based panels used, showing fulfilment of the requirement. Plus, declaration from the test laboratory confirming conformity with the requirements in EN 71-3 for the types of toys for which the application is being made. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement has been made more specific in this generation of the criteria.

For background on this requirement, see requirement O65.

O73 Surface treatment

Surface treatment of wood-based panels must comply with requirements O68, O69 and O70.

Lamination is not considered a surface treatment in this context and therefore is exempted from this requirement. Instead it must meet the chemical requirements that apply to the production of wood-based panels (requirements O75, O76 and O77).

Background to the requirement

The requirement has been tightened and amended compared with the previous generation of the criteria.

For the background to this requirement, see requirements O68, O69 and O70.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O73 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirements O6, O7 and O8.

O74 Prohibited tree species

Species of trees on the Nordic Ecolabel list of protected tree species (www.nordic-ecolabel.org/wood/) must not be used.

✉ Declaration from the applicant/manufacturer/supplier that the requirement is fulfilled.

Background to the requirement
The requirement is new in this generation of the criteria.

For background on this requirement, see requirement O66.

6.12.2 Requirements that apply to wood-based panel elements constituting over 5% by weight of the toy

The requirements in this section apply to wood-based panel elements that constitute more than 5 wt% of the toy. See the definition of material element in section 5.2.

O75 Chemical products – Classification

Chemical products used in the production of wood-based panels must not have any of the classifications listed in the table below.

Table: List of non-permitted classifications of chemical products

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362
Hazardous to the aquatic environment	Aquatic acute 1 Aquatic chronic 1 Aquatic chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3 Acute Tox. 4 Acute Tox. 4 Acute Tox. 4	H300 H310 H330 H301 H311 H331 H302 H312 H332
Specific target organ toxicity	STOT SE 1 STOT RE 1 STOT RE 2 STOT SE 2	H370 H372 H371 H373
Sensitising (allergenic)	Resp. sens. 1, 1A or 1B Skin sens. 1, 1A or 1B	H334 H317

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

✉ Safety data sheet for the chemical product in accordance with current European legislation.

✉ Declaration from the manufacturer/supplier of the chemical product used in the production of wood-based panels, confirming fulfilment of the requirement.

Background to the requirement
The requirement has been changed in this generation of the criteria.

Classification H362 has been added. Classifications H412, H413 and H334 have been removed.

For more background on this requirement, see requirement O6.

O76 Ingoing substances, Classification

The ingoing substances[1] used in the production of wood-based panels must not have any of the classifications listed in the table below.

[1] See the definition of ingoing substances in section 6.2.

Table: List of non-permitted classifications of ingoing substances

CLP Regulation 1272/2008		
Hazard statement	**Hazard class and category**	**Hazard code**
Carcinogenic	Carc. 1A or 1B Carc. 2	H350 H351
Mutagenic	Muta. 1A or 1B Muta. 2	H340 H341
Reprotoxic	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also comprises the H350i classification.

✉ Declaration from the manufacturer/supplier of the chemical product used in the production of wood-based panels, confirming fulfilment of the requirement.

Background to the requirement

The requirement has been tightened in this generation of the criteria, with the addition of a ban on H362.

For more background on this requirement, see requirement O7.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O76 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O7.

O77 Prohibited substances

The following substances must not be present[1] the chemical product used in the production of wood-based panels:

- Substances on the EU's Candidate List in accordance with REACH, 1907/2006/EC, article 59, section 10 on the European Chemicals Agency (ECHA) website.
- Substances that are assessed by the EU to be PBT substances (persistent, bioaccumulative and toxic substances) or vPvB substances (very persistent and very bioaccumulative) in accordance with the criteria in Annex XIII of REACH.
- Substances that are considered to be potential endocrine disruptors in category 1 or 2 on the EU's priority list of substances that are to be investigated further for endocrine disruptive effects. The list can be found here: http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf

In addition, the following substances and substance groups must not be present[1]. There may be overlaps between the substances on the following item list and the substances or groups of substances of which the properties are listed above:

- Halogenated organic compounds[2] (e.g. organic chloroparaffins, fluorine compounds, halogenated flame retardants, chlorophenols, etc.). The following are exempted:
  - Bronopol up to 0.05 wt%
  - The blend (3:1) of CMIT/MIT (5-chloro-2-methyl-4-isothiazolin-3-one; 2-methyl-4-isothiazolin-3-one) up to 0.0015 wt%
  - IPBC (iodopropynyl butylcarbamate) up to 0.20 wt%
  - Pigment which complies with EU requirements for dyes in plastic materials in contact with food under Resolution AP (89) point 2.5.
- Isothiazolinones (total) at more than 0.05 wt%
- Bisphenol A, S and F
- Alkylphenols, alkylphenol ethoxylates or other alkylphenol derivatives[3]
- Butyl hydroxytoluene (BHT) and butyl hydroxyanisole (BHA)
- Phthalates[4]
- Pigments and additives based on lead, tin, cadmium, chromium (VI), mercury, antimony, arsenic and their compounds
- Volatile aromatic hydrocarbons (VAH)[5]
- For glue: Volatile aromatic compounds (VOC) at more than 3 wt%[6] in the glue

[1] *See the definition of ingoing substances in section 6.2.*

[2] *Be aware of national legislation concerning PFOA if the product is to be sold/marketed in Norway. In Norway, PFOA is governed by the "Regulation on restrictions to the use of health- and environmentally hazardous chemicals and other products (Product Regulations)", Section 2-32.*

[3] *Alkylphenol derivatives are defined as substances released from alkylphenols on degradation.*

[4] *Phthalates are esters of 1,2-benzenedicarboxylic acid (orthophthalic acid).*

[5] *Volatile aromatic hydrocarbons (VAH) are defined as aromatic compounds whose boiling point is max 250°C, measured at a standard pressure of 101.3 kPa.*

[6] *Volatile organic compounds (VOC) are defined as organic substances with an initial boiling point of max 250°C measured at a standard pressure of 101.3 kPa.*

✉ Declaration from the manufacturer/supplier of the chemical product used in the production of wood-based panels, confirming fulfilment of the requirement.

Background to the requirement

The requirement has been changed in this generation of the criteria.

For more background on this requirement, see requirement O8.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Requirement O77 covers several of the substances for which there are requirements in Appendix C as of March 2020 – read more under requirement O8.

O78 Formaldehyde

Wood-based panels that contain formaldehyde-based adhesive must meet one of the following requirements a) or b):

a) According to the test method of the ISO 12460-5 standard, the content of free formaldehyde must not exceed an average of 5 mg formaldehyde/100 g dry product for MDF and HDF panels and 4 mg/100 g dry product for all other types of panels.
The requirement applies to wood-based panels with a moisture content of H = 6.5%. If the moisture content of the panels is between 3% and 10%, the test results must be multiplied by F factor, calculated using the following formulas:
- For chipboard: F = -0.133 H + 1.86
- For MDF and HDF: F = -0.121 H + 1.78

b) According to the test method of the ISO 717-1 standard, emissions of formaldehyde must not exceed an average of 0.09 mg/m^3 air for MDF and HDF panels and 0.07 mg/m^3 air for other types of panels.

Option b) in the requirement can also be documented using the ASTM E 1333 and JIS A 1460 test methods. The correlation between the threshold limit values that must be met in accordance with the test method of the EN 717-1 standard and the other test methods is:

Type of panel	EN 717-1 (23°C/45% RH)	ASTM E 1333 (25°C/50% RH)	ASTM E 1333 (25°C/50% RH)	JIS A 1460
MDF and HDF	0.09 mg/m3	0.06 ppm	0.07 mg/m3	0.66 mg/L
Other panels	0.07 mg/m3	0.08 ppm	0.10 mg/m3	0.53 mg/L

✉ Analysis report, including measurement methods, measurement results and measurement frequency. It must be clearly stated which method/standard was used, the laboratory that conducted the analysis, and that the analysis laboratory is an independent third party. Other analysis methods than those stated in the requirement may be used, provided that the correlation between test methods can be verified by an independent third party. The analysis laboratory must meet the requirements in Appendix 2.

Background to the requirement

The requirement has been changed in this generation of the criteria. In the previous generation of the criteria, the requirement related to chemical products and adhesives used in the production of the panels. The current requirement concerns formaldehyde levels in and emissions from the panels. The requirement has been harmonised with generation 5 of the criteria for Nordic Swan Ecolabelled Furniture.

Adhesives containing formaldehyde are often used in the manufacture of wood-based panels. Action has been taken to reduce emissions of formaldehyde from the panels as a finished product. Formaldehyde is a toxic, sensitising and carcinogenic substance and Nordic Ecolabelling wants to restrict its use to the greatest extent possible from an occupational health and safety point of view and because of the dangers it poses to users of the furniture and to the indoor climate.

The EU's classification system for emissions of formaldehyde from wood-based panels is defined in the harmonised EN 13986 standard. The threshold limit values of the E1 emission class, currently the lowest, are 0.124 mg/m^3 as measured by EN 717-1.

The Nordic Swan Ecolabel has requirements in place for emissions of formaldehyde from wood-based panels in many of the product groups, including Construction and façade panels, Floor coverings, and Small houses, apartment buildings and buildings for schools and pre-schools. The requirement in this version of the criteria for furniture has been harmonised with the requirement in Construction and façade panels Version 6. This means that the threshold limit value for MDF and HDF has been tightened from 0.124 mg/m^3 to 0.09 mg/m^3 as measured by EN 717-1 and that an E1 certificate is thus no longer accepted as documentation for the requirement. Version 6 of the criteria for Construction and facade panels was published in 2015 and there are several Nordic Swan Ecolabelled MDF panels that meet the 0.09 mg/m^3 threshold limit. The 0.07 mg/m^3 threshold limit value for other panels is still considered to be strict and has not been tightened.

The requirement in relation to the EU Toy Safety Directive – Appendix C

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers chemicals used in toys for children under the age of 3 or toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[113], and these requirements are then added to the EU Toy Safety Directive by means of separate directives/regulations. Requirement O78 covers substances for which there are requirements in Appendix C as of March 2020:

- Directive (EU) 2019/1929 concerning Formaldehyde:
- Formaldehyde classifications include H350 and H341. See also requirements O7, O9, O20, O23, O33 and O34.

6.12.3 Requirements that apply to wood-based panels constituting more than 10% by weight of the toy

The requirements in this section apply to wood-based panels that constitute more than 10 wt% of the toy. See the definition of material type in section 6.2.

O79 Traceability and certification of wood raw material in wood-based panels

Species name

The manufacturer/supplier must state the name (species) of the wood/bamboo used.

Manufacturers/suppliers that only use recycled material* are exempted from this requirement.

Chain of Custody certification

Manufacturers/suppliers of the toy or applicant's/producer's supplier of wood/bamboo must have Chain of Custody certification under the FSC/PEFC schemes.

This requirement also applies to manufacturers/suppliers that use recycled material*.

Certified wood/bamboo

At least 70% of the wood/bamboo used in the toy must be certified as originating from sustainable forestry under the FSC or PEFC schemes.

[113] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

The remaining percentage of wood/bamboo must be covered by the FSC/PEFC compliance schemes (FSC Controlled Wood/PEFC Controlled Sources).

This requirement also applies to recycled material*.

*** Recycled material:** *Pre-consumer or post-consumer recycled raw materials, see the definition in the ISO 14021 standard. See the definitions in section 6.2 for more details.*

Nordic Ecolabelling includes by-products from primary wood processing industries (sawdust, wood chips, shavings, bark etc.) or residues from forestry operations (bark, branches, roots, etc) in its definition of recycled material.

- ✉ Name (species name) of the wood/bamboo used.
- ✉ A valid FSC/PEFC Chain of Custody certificate from the applicant/manufacturer/supplier that covers all the wood/bamboo.
- ✉ If the toy manufacturer is Chain of Custody certified: A manufacturer that has FSC/PEFC Chain of Certification must submit documentation showing compliance with the requirement for the percentage of certified material through the applicant/manufacturer's Chain of Custody account.
- ✉ If a supplier holds Chain of Custody certification, the toy manufacturer must show that it purchases certified wood/bamboo. This is to be verified via invoices stating the proportion of certified material purchased.
- ✉ Declaration of compliance with the requirement for the percentage of certified material or recycled material through the manufacturer/supplier's Chain of Custody account.

Background to the requirement
The requirement has been changed in this generation of the criteria.

For the background to this requirement, see requirement O71.

6.13 Spare parts

Some types of toys can have their service life extended by offering spare parts. This in turn reduces the consumption of resources and thus also the environmental impact.

O80 Spare parts

This requirement applies to:

- Toys sold to institutions (e.g. schools and nurseries), comprising individual parts (e.g. pieces for board games and jigsaw puzzles*, components, or the like) that are necessary for the function or the original play concept.
- Toys designed to carry a child's weight and that have moving parts (e.g. toy bikes and toy kick scooters). Applies to toys sold to institutions or private consumers.

Spare parts are to be offered for a minimum of four years after the date of the toy's purchase**.

Spare parts must include parts that are essential to the toy's function or original play concept (e.g. pedals, bearings, wheels, play pieces).

The option to purchase spare parts is to be clearly communicated to customers, for example on the website, in marketing material and so on. Ordering spare parts must also be user-friendly and simple for the customer.

** Applies in cases where each part is produced separately. For example, this requirement does not apply to jigsaw pieces that make up a single picture, where all the pieces are simultaneously stamped out from that image.*

However, the requirement does apply to jigsaw pieces for young children, where each piece carries an individual picture.

*** The purchase date is interpreted as occurring two years after the production date, so that if spare parts are offered for a minimum of four years after the purchase date, the spare parts will have to be available for at least six years after the production date.*

✉ Declaration from the applicant that spare parts are offered for a minimum of four years after the date of the toy's purchase. Plus, a description of which spare parts are offered.

✉ Documentation showing how the option of purchasing spare parts is communicated to the customer and that the ordering procedure is user-friendly.

Background to the requirement

The requirement is new in this generation of the criteria.

A long or extended service life for a toy reduces the consumption of resources and thereby also the environmental impact. The ability to purchase spare parts is a way to extend the service life of the toy. It is therefore important to set requirements that enable the products to have a long service life.

The requirement covers toys sold to institutions (e.g. schools and nurseries), when the toy consists of individual parts (e.g. play pieces, components or similar) that are necessary for the function or the original play concept. With toys that have individual pieces to play with, there is a greater risk that those pieces might eventually be lost, perhaps leaving a toy that does not work and so is discarded. For toys with individual play pieces, the requirement is limited to toys for institutions, where many children use the toy and the toy is used in a large area, making it reasonable to expect that pieces will be lost more often than would be the case with toys used at home. The requirement applies to toys for public or private institutions.

There are also requirements relating to toys designed to carry a child's weight and that have moving parts (e.g. toy bikes and toy kick scooters). This applies to toys sold to institutions or private consumers. Toys with an imposed load and complex parts are more vulnerable to wear. It is also usual to expect that toys such as bikes and kick scooters have a long service life, which can be further extended by having spare parts available.

Spare parts are to be offered for a minimum of four years after the purchase date. Toys may sit on store shelves for long time. The toy manufacturers/resellers are typically unable to control how long their toys remain in a store. The requirement therefore states that the purchase date is interpreted as occurring two years after the production date. This way, the toy manufacturers/resellers have a specific date for the minimum length of time they must provide spare parts for a specific toy and the consumers can be reasonably sure that spare parts will be available for the toy for at least four years after the purchase date.

The German Ecolabel Blauer Engel has criteria for toys, the latest version of which as of February 2020 is Toys DE-UZ 207 (Edition January 2017 Version 2). These criteria require that spare parts are available for a minimum of four years after the toy's purchase date. The requirement appears to primarily apply to toys comprising individual parts (e.g. play pieces, components or similar) that are necessary for the function or the original play concept.

6.14 Packaging, storage, and transport

Packaging and recycling are key focus areas in today's society. Nordic Ecolabelling sets strict requirements concerning packaging in order to optimise the potential for recycling.

The requirements below relate to primary packaging.

O81 Packaging – Volume in relation to toy

The volume of the toy must be at least 65% of the total volume of the packaging.

✉ Calculation showing fulfilled of the requirement. The calculation should contain information about the total volume of the packaging and the volume of the toy.

Background to the requirement

The requirement is new in this generation of the criteria.

With toys in particular, it is common for the packaging to have a large volume in relation to the toy itself. This practice places an unnecessary strain on the environment by increasing the amount of packaging materials, as well as energy consumption and emissions from transport, since fewer products can be transported for that volume.

South Korea has legislation stating that the volume of the packaging must be no more than 35% more than the total volume of the product in the packaging. Since this requirement is new and there is no accompanying experience in this area, the requirement here in the criteria has also been set at 35%, but expressed as: the volume of the toy must equate to at least 65% of the total volume of the packaging.

Calculations and examples:

The calculation shall contain information about the total volume of the packaging and the volume of the toy. An example calculation: if the volume of the packaging is 5000 cm^3 and the volume of the toy is 3500 cm^3, the toy will equate to (3500/5000 = 0.7) 70%, thus fulfilling the requirement.

- Calculating board games: The volume of the game board is calculated. All the pieces, dice, etc. are collected in a square box and the volume is calculated from the volume that these make up together in the box. The volume of the board is then added to the volume of the box, and the total is taken as the volume of the toy. The box containing the board and pieces, dice, etc. is treated as packaging in this requirement. If, however, the box is also used in the game, it is subject to the relevant material requirements.
- Calculating dolls and similar toys: The volume of dolls, soft toys and similar products can be calculated by taking each part (head, legs, arms, body and so on) and calculating these as rectangles, then adding all the figures together.
- Calculating packaging with one or more open sides: Where cardboard boxes have one or more open sides without packaging, the volume of the packaging can be calculated as follows:
  If the packaging has bottoms or sides with volume (voids), then the volume of each is calculated. Then either a) or b) is calculated:
  a) the volume of the triangle when cutting from top to bottom just above the toy that fills the space most. This is relevant in cases where it is possible to more or less cut a triangle across the toy.
  b) the volume of the rectangle when cutting from the height and width just above the toy that fills the space most.

Then the volumes for any bottom and sides are added to point a) or point b) above and this is the total volume of the packaging.

O82 Packaging – Ban on certain plastic types

PVC, PVDC, oxo-degradable plastic and biodegradable plastic must not be used in the packaging.

✉ Declaration from the packaging manufacturer that the requirement is fulfilled.

Background to the requirement

The requirement has been tightened in this generation of the criteria to include PVDC (polyvinylidene chloride), oxo-degradable plastic and biodegradable plastic.

PVC (polyvinyl chloride) may also contain plasticisers in the form of phthalates that may be reprotoxic or harmful to the environment. In addition to the risk of phthalates in soft PVC, the waste treatment of PVC is particularly problematic. This is due to the fact that incinerating 1 kg of PVC generates 0.4–1.7 kg flue gas treatment residues, which are sent to landfill. The amount depends on the type of incineration process used[114]. In Denmark, for example, attempts have been made to develop methods to process these flue gas cleaning residues in order to recover the salts, particularly $CaCl_2$, but this has not proven financially viable, according to the Amager Resource Center in Denmark, which also reports that the hydrochloric acid formed on the combustion of the chlorine in PVC can corrode the installations and the chlorine can lead to the formation of dioxins and furans. Besides the waste phase, PVC is also environmentally problematic in other areas. PVC consists of approximately 57% industrially produced chlorine and approximately 43% fossil coal from oil or gas. The electrolysis process in PVC production releases chlorine gas (Cl_2), for example, which is toxic. In Plastic Europe's Cl_2 Eco-profile, dioxin/furan emissions are stated as less than 1 mg for the production of 1 kg of chlorine. This is an average figure, however, so there is a risk of PVC/chlorine gas production with higher dioxin emissions than are stated here.

Oxo-degradable and biodegradable plastics must not be used, since they "contaminate" the other recycled plastic streams in the Nordic region. Bio-based plastic in PET, PE and PP can be recycled in the same way as fossil-based plastic in PET, PE and PP.

O83 Packaging – Recyclability and recycled material

This requirement applies to primary packaging*.

Recyclability:

It must be possible to recycle the main material** in the packaging via the existing waste systems operating in the Nordic region today.

Incineration with energy recovery does not count as material recycling.

Plastic packaging:

Coloured plastic cannot be used. Colouring is permitted only if at least 50% by weight of the plastic is recycled material***.

[114] Memo: Ole Hjelmar, DHI – Institute for Water and the Environment in 2002 Memo on mass flows on incineration of PVC

Paper and cardboard-based packaging:

Paper and cardboard-based packaging must in total contain 100% FSC or PFC certified fibre raw material and/or post-consumer/post-commercial recycled material***.

* *Primary packaging is defined here as packaging from the manufacturer that accompanies the product all the way to the consumer. Delivery packaging used by online retailers is not considered to be primary packaging.*

** *The main material is defined as the material that makes up 90 wt% or more of the total primary packaging.*

*** *Recycled plastic material is defined as post-consumer/commercial recycled material as defined in ISO 14021:2016:*

"Post-consumer" is defined as material generated by households or commercial, industrial, or institutional facilities in their role as end-users of a product that can no longer be used for its intended purpose. This includes materials from the distribution chain.

✉ Description of packaging stating material types, which materials if any are recycled and the wt% of each.
✉ For plastic: Documentation showing that the plastic is not coloured, or documentation that the plastic is recycled.
✉ For paper and cardboard: Valid FSC/PEFC Chain of Custody certificate and/or documentation that the paper/cardboard is recycled.

Background to the requirement

The requirement is new in this generation of the criteria.

Recyclability is an important step in the transition to a circular economy. This provides an opportunity for materials to stay in the resource eco cycle, thereby reducing the use of virgin resources. The extent to which a material is recycled depends on many factors, such as the sorting options in each country or local authority, and how the consumer ultimately sorts the waste. However, Nordic Ecolabelling has an opportunity to promote the recycling of packaging by setting design requirements that support this process.

The main material in the packaging must be recyclable. The EU's action plan for a circular economy focuses on recovery and reuse, particularly with regard to packaging materials. Waste collection can either lead to a high level of material recycling, where valuable materials are returned to the economy, or to an inefficient system where recyclable waste largely ends up in landfill or is sent for incineration. The EU has drawn up a plastics strategy, which includes focusing on making the recycling of plastic more financially viable and working towards global solutions and standards that promote plastics recycling115.

For cardboard/paperboard/paper packaging, there is also the option of using FSC or PEFC certified fibre raw material. The design of toy packaging is often important and, in some cases, it may be necessary to use virgin fibre raw material or at least a proportion of virgin fibre raw material. The use of FSC or PEFC certified fibre raw material is therefore permitted. For more background on FSC and PEFC certification, see requirement O71.

115 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Closing the loop – An EU action plan for the Circular Economy, COM(2015) 614 final, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0614

Oxo-degradable and biodegradable plastics must not be used, since they "contaminate" the other recycled plastic streams in the Nordic region. Bio-based plastic in PET, PE and PP can be recycled in the same way as fossil-based plastic in PET, PE and PP.

Colour affects the recyclability of the packaging. Non-coloured or clear plastic packaging is preferred, because it has a wider range of recycling options than strongly coloured plastic. Colourless plastic has the highest recycling value. Dark colours result in darker recycled granules, which is not the preferred choice, and carbon black creates problems in most automated sorting systems, as the NIR (near infra-red reflectance) detector cannot identify dark colours produced using carbon black. Only colourless plastic is accepted unless it makes use of recycled plastic. Colouring is permitted only if at least 50% by weight of the plastic is recycled plastic.

O84 Packaging – Design for recycling

If the packaging comprises multiple material types, it must be easy to separate these (e.g. plastic and paper board).

If labels are used on plastic packaging, the labels must cover no more than 30% of the plastic surface or the labels must be made of the same type of plastic as the packaging to which they are attached.

✉ Description of the packaging and labels documenting compliance with the requirement.

Background to the requirement

The requirement is new in this generation of the criteria.

The best way to ensure high quality recycling is to design the whole packaging in one material, so that individual parts of the packaging do not need to be separated out in the recycling process. Alternatively, the packaging can be designed to include multiple material types, as long as the materials can be easily separated.

It can cause problems in identifying the type of plastic and thus sorting the plastic correctly (e.g. using NIR technology), if labels are made of other materials (e.g. paper) and constitute more than 60% of the surface. Labels made of the same type of plastic as the packaging are preferable, since the recycled plastic will thus be less contaminated, and the quality will be better[116]. The requirement allows for the use of labels in other materials, but in order to minimise any loss of quality in the recycled plastic, these labels must make up no more than 30% of the surface of the plastic packaging.

O85 Information on sorting for recycling

The requirement applies if the packaging comprises multiple types of material.

The packaging must carry information on how the material types can be separated and how they must be sorted for recycling. This information may be stated using text or symbols.

✉ Product label or artwork providing information on separation and sorting for recycling.

[116] https://plast.dk/wp-content/uploads/2019/12/Designguide-Genbrug-og-genanvendelse-af-plastemballager-til-de-private-forbrugere-online-version.pdf

Background to the requirement
The requirement has been reworded since the previous generation of the criteria.

To stimulate the sorting of packaging for recycling, a new requirement has been added concerning the provision of guidance on the packaging about how it should be sorted for recycling. The waste phase is affected by many factors, such as the sorting options in each country or local authority, and how the consumer ultimately sorts the waste. However, Nordic Ecolabelling can generally encourage greater recycling of packaging by setting requirements that support recycling options.

O86 Transport and storage – Chlorophenols, DMF, PCB and organotin compounds

Chlorophenols (and their salts and esters), dimethyl fumarate (DMF), PCB and organotin compounds must not be used in connection with the transport or storage of the toy and its semi-manufactures.

✉ Declaration from the suppliers at every stage of the production chain, confirming that these substances or compounds are not used during the transport or storage of the toy and its semi-manufactures.

Background to the requirement
The requirement is new in this generation of the criteria.

The requirement that chlorophenols, dimethyl fumarate, PCB and organotin compounds must not be used during transport or storage includes the toy both before and after any finishing. These chemicals are sometimes used to prevent the textiles from being attacked by moths and other insects during storage and transport. They are all chemicals that are harmful to health and the environment and are therefore not permitted.

Chlorophenols and salts and esters of chlorophenol are seldom used, but are considered to remain relevant, as certain suppliers may still use these biocides during transport and storage. Their use is not permitted in the EU, but they could still be applied to raw materials originating from outside the EU.

Dimethyl fumarate (DMF) is a mould and fungus killing agent that can be used to protect furniture or shoes etc. during long transport. DMF can cause serious allergic reactions and is currently regulated in the EU through a ban on imports and sales of goods that contain over 0.1 mg/kg or where DMF has been declared[117].

The most thoroughly investigated organotin compound is tributyltin (TBT), which accumulates in the food chain and has endocrine disrupting effects on marine organisms.

6.15 Social and ethical requirements

O87 Fundamental principles and rights at work

The licensee must ensure that the production sites* used in the production of the toy comply with:

- Relevant national laws and regulations

[117] https://www.retsinformation.dk/Forms/R0710.aspx?id=124428#Not1

- The International Labour Organisation (ILO) Conventions below:

ILO Conventions:

1. Prohibition of forced labour (ILO Conventions Nos. 29 and 105)

2. Freedom of association, and protection of the right to organise and to conduct collective bargaining (ILO Conventions Nos. 87, 98, 135 and 154)

3. Prohibition of child labour (ILO Conventions Nos. 138, 182 and 79 plus ILO Recommendation No. 146)

4. No discrimination (ILO Conventions Nos. 100 and 111, UN Convention on the Elimination of All Forms of Discrimination against Women)

5. No violent treatment – Physical abuse or punishment, and threats of physical abuse are prohibited. The same applies to sexual or other forms of harassment.

6. Workplace health and safety (ILO Convention No. 155 and ILO Recommendation No. 164)

7. Fair pay (ILO Convention No. 131)

8. Working hours (ILO Conventions Nos.1 and 14)

** In this requirement, "production sites" covers the following:*

- production sites that assemble the toy into the finished product.
- production sites that make semi-manufactures. A semi-manufacture is defined here as a collection of elements for the finished toy.

The licensee must have written procedures in place to ensure compliance with the above conditions at production sites.

In addition, the licensee must submit either a valid SA8000 certificate or third-party verification of compliance with the requirement, e.g. a BSCI audit report, ICTI Ethical Toy Program certificate or other third-party verification that the production sites meet the requirement.

If the manufacturer is in the process of becoming SA8000 certified, this may be accepted under the following conditions: The last report from the certification body, incl. action plan with specified deadlines, is submitted for assessment. Nordic Ecolabelling may withdraw the Nordic Swan Ecolabel licence, if the licensee no longer fulfils SA8000 or does not meet the stated deadlines in any action plans.

✉ Written procedures from the licensee, aimed at ensuring that the production sites used meet the requirement.
✉ The applicant must submit a description of the Code of Conduct for its suppliers.
✉ SA8000 certificate or third-party verification of compliance with the requirement, e.g. BSCI audit report or ICTI Ethical Toy Program certificate.

Background to the requirement

The requirement has been changed in this generation of the criteria, with the addition of more ILO Conventions and adjustment of the documentation requirements. The requirement has been harmonised with generation 5 of the criteria for Nordic Swan Ecolabelled Textiles, hides/skins, and leather.

The requirement refers to the UN's Universal Declaration of Human Rights148, which deals with respect for and the upholding of human rights, and the International Labour Organisation's (ILO) Conventions on relevant rights at work. These are recognised and widely used frames of reference for businesses in their work on human rights and workers' rights, and they underpin most of the systems and guidelines that address human rights, such as the OECD, ISO 26000, SA8000, the UN Global Compact, the UN Guiding Principles and the Ethical Trading Initiative.

A new report from April 2019, compiled by Human Rights Watch118, shows that low purchase prices and shorter lead times for textiles, combined with unfair sanctions and poor terms of payment, increase the risk of occupational accidents in textile factories. The severe financial pressure that many textile brands are putting their suppliers under gives those suppliers powerful incentives to cut costs in ways that worsen working conditions. Many brands demand that their suppliers uphold key workers' rights, while at the same time pressuring and encouraging them to do the opposite. It is therefore considered relevant to expand the current requirement to include at least four new areas that are subject to ILO Conventions: "No violent treatment", "Workplace health and safety" (ILO Convention No. 155 and ILO Recommendation No. 164), Fair pay (ILO Convention No. 131) and Working hours (ILO Conventions Nos.1 and 14).

An SA8000 certificate with, for example, a BSCI audit report covers the ILO Conventions contained in the requirement119. A BSCI audit report may therefore be used as documentation for the requirement.

7 Quality and regulatory requirements

Quality and regulatory requirements are general requirements that are always included in Nordic Ecolabelling's product criteria. The purpose of these is to ensure that fundamental quality assurance and applicable environmental requirements from the authorities are dealt with appropriately. They also ensure compliance with Nordic Ecolabelling's requirements for the product throughout the period of validity of the licence.

These requirements have been extended in this generation of criteria with new requirements "Annual controls and assessments of suppliers".

To ensure that the Nordic Ecolabelling's requirements are met, the following routines must be implemented.

O88 Annual controls and assessments of suppliers

The licensee shall establish and use guidelines for annual controls and assessments of external suppliers.

In this requirement, external suppliers are:

a) suppliers who assemble the toy into the finished product.

b) suppliers who make semi-manufactures. A semi-manufacture is defined here as a textile fabric or a collection of elements for the finished toy.

c) suppliers that perform surface treatments (regardless of on which type of material).

These guidelines must contain the following, as a minimum:

- There must be an annual check that the supplier's responsible person is familiar with Nordic Ecolabelling's requirements and understands how the supplier can ensure compliance with these.

[118] "Paying for a Bus Ticket and Expecting to Fly" How Apparel Brand Purchasing Practices Drive Labor Abuses, 2019 https://www.hrw.org/sites/default/files/report_pdf/wrd0419.pdf
[119] ICTI Ethical Toy Program, https://www.ethicaltoyprogram.org/en/ visited on 8 Jan 2020

- There is to be an annual check that procedures have been implemented to ensure that changes are only made to the production of the Nordic Swan Ecolabelled toy (e.g. changes to raw materials) once the licensee has obtained approval from Nordic Ecolabelling.
- If any of the requirements in the criteria are documented via certification schemes (e.g. Oeko-Tex 100, GOTS, Global Recycled Standard certificate, FSC, EU Ecolabel or similar), checks are to be carried out to ensure that certificates are up to date and remain valid.
- There must also be a description of procedures and consequences that come into force if assessments of suppliers reveal a lack of conformity with the above.

✉ The applicant shall submit a description of the guidelines for annual controls and assessments of external suppliers.

✉ Each year, the licensee shall provide Nordic Ecolabelling with documentation of the annual controls and assessments of external suppliers, e.g. in the form of annually updated supplier assessment lists that include details of the responsible persons and the requirement areas assessed. Documentation for every year that the licence remains valid must be archived by the licensee.

Background to the requirement

The requirement is new in this generation of the criteria.

The requirement has been set to ensure conformity between the licence and the actual production of the toy at all times.

O89 Responsible person and organisation

The company (both the holder of the production license and the holder of the brand owner license) shall appoint individuals who are responsible for ensuring the fulfilment of the Nordic Ecolabelling requirements, for marketing and for finance, as well as a contact person for communications with Nordic Ecolabelling.

✉ Organisational chart showing who is responsible for the above.

O90 Documentation

The licensee shall archive the documentation that is sent in with the application, or in a similar way maintain information in the Nordic Ecolabelling data system.

🔑 Checked on site, as necessary.

O91 Quality of the toy

The licensee shall guarantee that the quality of the Nordic Swan Ecolabelled product does not deteriorate during the validity period of the licence.

✉ Procedures for archiving claims and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Swan Ecolabelled product.

🔑 The claims archive is checked on site.

O92 Planned changes

Written notice must be given to Nordic Ecolabelling of planned changes in products and markets, that have a bearing on Nordic Ecolabelling requirements.

✉ Procedures, of both the holder of the production license and the holder of the brand owner license, detailing how planned changes in products and markets are handled.

O93 Unplanned nonconformities

Unplanned nonconformities that have a bearing on Nordic Ecolabelling requirements must be reported to Nordic Ecolabelling in writing and journaled.

✉ Procedures detailing how unplanned nonconformities are handled.

O94 Traceability

The licensee must be able to trace the Nordic Swan Ecolabelled product in the production. A manufactured / sold product should be able to trace back to the occasion (time and date) and the location (specific factory) and, in relevant cases, also which machine / production line where it was produced. In addition, it should be possible to connect the product with the actual raw material used.

✉ Description of/procedures for the fulfilment of the requirement.

O95 Legislation and regulations

The licensee shall ensure compliance with all applicable local laws and provisions at all production facilities for the Nordic Swan Ecolabelled product, e.g. with regard to safety, working environment, environmental legislation and site-specific terms/permits.

✉ Duly signed application form.

8 Areas without requirements

A requirement concerning the guarantee period was considered in the revision of the criteria, but the decision was made not to require a guarantee period beyond the period required by law. Toys come in a wide variety of designs and material compositions, and the way a toy is handled varies hugely from child to child. It is therefore difficult to set an extended guarantee period for toys in general, which is why no such requirement has been included in this generation of the criteria.

Requirements concerning easy separation of the toy into different types of material so such materials could be recycled was given due consideration in the revision, but the decision was taken not to set requirements for this. Toys must satisfy the safety requirements in EN 71-1 concerning mechanical and physical properties. Particularly in the case of toys that comprise different material types and, for example, are intended for children under the age of 3, it can be difficult to design products that meet both the safety requirements and the requirements concerning separation of materials. The judgement was made that, as things stand, a requirement concerning easy separation of the toy into material types would exclude too many types of toys, and for this reason it has not been included in this generation of the criteria.

Appendix 1 List of products not covered by the EU Toy Safety Directive (2009/48/EC)

The following list corresponds to Annex I of the EU Toy Safety Directive (2009/48/EC):

- Decorative objects for festivities and celebrations
- Detailed scale models for adult collectors
- Folk dolls and decorative dolls and other similar articles for adult collectors
- Faithful reproductions of real firearms
- Historically faithful replicas of toys
- Sports equipment, including roller skates, inline skates, and skateboards
- Bicycles with a maximum saddle height of more than 435 mm
- Scooters and other means of transport designed for sport or for use on public roads
- Electrically driven vehicles for use on public roads
- Water sports equipment and swimming aids
- Puzzles with more than 500 pieces
- Guns and pistols using compressed gas
- Fireworks, including percussion caps
- Darts games (darts with metallic points)
- Electric ovens, irons or other functional products operated at a nominal voltage exceeding 24 volts
- Products intended for use for educational purposes in schools under the surveillance of an adult instructor, such as science equipment
- Electronic equipment, such as personal computers and game consoles
- Interactive software, intended for leisure and entertainment
- Babies' soothers
- Light fittings that appeal to children (e.g. night lights)
- Electrical transformers for toys
- Fashion accessories for children which are not for use in play

Appendix 2 Testmethods and analysis laboratory

Requirements on the analysis laboratory

The analytical laboratory / sampling institute must be competent and impartial.

If accreditation is not required separately, the sampling and/or analysis laboratory must meet the general requirements of ISO 17025 standard for quality control of sample and calibration laboratories or be an official GLP-approved analysis laboratory.

The applicant's analysis laboratory may be approved for analysis and testing if:

- sampling and analysis is monitored by the authorities, or
- the manufacturer's quality assurance system covers analyses and sampling and is certified to ISO 9001 or ISO 9002, or
- the manufacturer can demonstrate agreement between a first-time test conducted at the manufacturer's own laboratory and testing carried out in parallel at an independent test institute, and the manufacturer takes samples in accordance with a fixed sampling schedule.

Appendix 3 Carcinogenic aromatic amines

Carcinogenic aromatic amines	CAS-no
4-aminodiphenyl	92-67-1
Benzidine	92-87-5
4-chlor-o-toluidine	95-69-2
2-naphthylamine	91-59-8
o-amino-azotoluene	97-56-3
2-amino-4-nitrotoluene	99-55-8
p-chloraniline	106-47-8
2,4-diaminoanisol	615-05-4
4,4´-diaminodiphenylmethane	101-77-9
3,3´-dichlorbenzidine	91-94-1
3,3´-dimethoxybenzidine	119-90-4
3,3´-dimethylbenzidine	119-93-7
3,3´-dimethyl-4,4´-diaminodiphenylmethane	838-88-0
p-cresidine	120-71-8
4,4'-oxydianiline	101-80-4
4,4'-thiodianiline	139-65-1
o-toluidine	95-53-4
2,4-diaminotoluene	95-80-7
2,4,5-trimethylaniline	137-17-7
4-aminoazobenzene	60-09-3
o-anisidine	90-04-0
2,4-Xylidine	95-68-1
2,6-Xylidine	87-62-7
4,4'-methylene-bis-(2-chloro-aniline)	101-14-4
2-amino-5-nitroanisole	97-52-9
m-nitroaniline	99-09-2
2-amino-4-nitrophenol	99-57-0
m-phenylenediamine	108-45-2
2-amino-5-nitrothiazole	121-66-4
2-amino-5-nitrophenol	121-88-0
p-aminophenol	123-30-80
p-phenetidine	156-43-4
2-methyl-pphenylenediamine; 2,5diaminotoluene	615-50-9
2-methyl-pphenylenediamine; 2,5diaminotoluene	95-70-5
2-methyl-pphenylenediamine; 2,5diaminotoluene	25376-45-8
6-chloro-2,4-dinitroaniline	3531-19-9

Appendix 4 Potential – Substances that are harmful to health: Nordic Swan Ecolabel relative to EU Toy Safety Directive

The purpose of the EU Toy Safety Directive (2009/48/EC) is to ensure that toys are safe for children to use. The directive includes requirements on the safe design of toys in terms of their physical and mechanical properties. Annex II, part III of the EU Toy Safety Directive deals with chemical properties and has requirements concerning substances that are harmful to health. Below is a description of how Nordic Ecolabelling deals with each of these groups of hazardous substances in reference to Nordic Swan Ecolabelled toys. With regard to substances that are harmful to health, Nordic Swan Ecolabelled toys are subject to stricter requirements than those set out in the EU Toy Safety Directive, in order to exclude as many such substances as possible from all types of toys. Public authorities and consumer organisations regularly find prohibited substances that are harmful to health in toys. Nordic Swan Ecolabelled toys are therefore subject to stringent requirements concerning substances that are harmful to health and to a requirement for a third-party control of selected tests from the EU Toy Safety Directive.

See a further description of the EU Toy Safety Directive in section 3 of the background document.

CMR substances:

Annex II, part III of the EU Toy Safety Directive prohibits the use of substances that are classified as carcinogenic, mutagenic, or toxic for reproduction (CMR substances) in toys, in components of toys or in micro-structurally distinct parts of toys.

These criteria have an additional requirement stating that ingoing substances (see definition in section 5.2) in the chemical products used in Nordic Swan Ecolabelled toys must not contain CMR substances. As such, the requirement concerning CMR substances in Nordic Swan Ecolabelled toys applies to much smaller amounts than are required by the EU Toy Safety Directive.

N-nitrosamines and nitrosatable substances:

Annex II, part III of the EU Toy Safety Directive prohibits the use N-nitrosamines and nitrosatable substances in toys intended for use by children under 36 months or in other toys intended to be placed in the mouth if the migration of the substances is equal to or higher than 0.05 mg/kg for N-nitrosamines and 1 mg/kg for nitrosatable substances. However, in these criteria the migration limit for toys for children under the age of 3 that are intended or likely to be placed in the mouth is 0.01 mg/kg for N-nitrosamines and 0.1 mg/kg for nitrosatable substances.

Generation 3 of the criteria for the Nordic Swan Ecolabelling of Toys also goes further by requiring that tests are carried out for all types and parts of a toy that contain elastomers and with which children may come into contact, or that constitute more than 5% by weight of the toy.

In addition, the toys must meet the strictest limit, i.e. 0.01 mg/kg for N-nitrosamines and 0.1 mg/kg for N-nitrosatable substances, whatever the type of toy.

Fragrances:

In Annex II, part III of the EU Toy Safety Directive, toys must not contain a list of allergenic fragrances.

Generation 3 of the criteria for the Nordic Swan Ecolabelling of Toys goes further by requiring that fragrances must not be added to the toy or to the ingoing materials in the toy.

Metals:

Annex II, part III of the EU Toy Safety Directive requires that limits for the migration of certain metals from toys or components of toys shall not be exceeded. These limit values do not apply to toys or components of toys which, due to their accessibility, function, volume, or mass, clearly exclude any hazard due to sucking, licking, swallowing or prolonged contact with skin.

Generation 3 of the criteria for the Nordic Swan Ecolabelling of Toys requires that ingoing substances (see definition in section 5.2) in the chemical products used in Nordic Swan Ecolabelled toys must not contain CMR substances. Several of the listed metals are, for example, classified as CMR, e.g. cadmium (H341, H350 and H361); nickel (H351); lead (H360 and H362) and chromium (VI) (H350).

In addition, there are the following requirements:

That pigments and additives based on lead, tin, cadmium, chromium (VI), mercury, antimony, arsenic and their compounds must not be used.

Chemical products used in textiles must not contain heavy metals, although metal impurities in dyes and pigments up to the amounts are permitted: antimony (50 ppm), arsenic (50 ppm), cadmium (20 ppm), chromium (100 ppm), lead (100 ppm), mercury (4 ppm), zinc (1500 ppm), copper (250 ppm), nickel (200 ppm), tin (250 ppm), barium (100 ppm), cobalt (500 ppm), iron (2500 ppm), manganese (1000 ppm), selenium (20 ppm) and silver (100 ppm).

Metal elements must not be coated with cadmium, chromium, nickel, copper, tin, lead, zinc, and their compounds. However, zinc surface treatment of small metal elements (e.g. screws, bolts, fittings) or other metal elements is accepted, if this is necessary due to extensive physical wear or on safety-related grounds.

Appendix C of the EU Toy Safety Directive (2009/48/EC).

Appendix C of the EU Toy Safety Directive (2009/48/EC) covers specific limit values for chemicals used in toys for children under the age of 36 or in other toys intended to be placed in the mouth. Chemical requirements are added to or amended in Appendix C on an ongoing basis[120]. In March 2020, Appendix C contained requirements for the following substances:

[120] http://ec.europa.eu/growth/sectors/toys/safety/legislation_en

- The flame retardants TCEP (tris(2-chloroethyl)phosphate), TDCP (tris(2-chloro-1-(chloromethyl)ethyl)phosphate) and TCPP (tris(2-chloro-1-methyl)phosphate)
- Formamide
- 1,2-benzisothiazol-3(2H)-one (BIT)
- 5-chloro-2-methyl-isothiazolin-3(2H)-one (CMI) and 2-methylisothiazolin-3(2H)-one (MI) in a ratio of 3:1 and the separate components CMI and MI
- Phenol
- Bisphenol A
- Formaldehyde

Generation 3 of the criteria for the Nordic Swan Ecolabelling of Toys goes further by setting requirements for the above substances in all Nordic Swan Ecolabelled toys. This means that the requirements for Nordic Swan Ecolabelled toys do not just cover toys for children under the age of 36 months or other toys intended to be placed in the mouth but apply to all Nordic Swan Ecolabelled toys. Generation 3 of the criteria for the Nordic Swan Ecolabelling of Toys deals with the substances above as follows:

- **TCEP, TDCP and TCPP:** These are prohibited in Nordic Swan Ecolabelled toys under the requirements prohibiting halogenated organic compounds in chemical products.
- **Formamide:** The requirement concerning emissions of formamide from foam materials in Nordic Swan Ecolabelled toys is identical to the EU Toy Safety Directive, but applies to all foam materials with which children may come into contact, or that constitute more than 5% by weight of the toy. In addition, formamide is classified as H360 and is thus prohibited under the CMR requirement concerning constituent substances in chemical products.
- **BIT, CMI/MI (3:1), CMI and MI:** These preservatives are restricted in water-based toy materials under the EU Toy Safety Directive as amended. Water-based toys are not permitted in these Nordic Swan Ecolabelling criteria. There is also a requirement that limits the amount of isothiazolinones in chemical products used in the manufacture of Nordic Swan Ecolabelled toys.
- **Phenol, bisphenol A and formaldehyde:** Phenol classifications include H341. Bisphenol A classifications include H360. Formaldehyde classifications include H350 and H341. Nordic Swan Ecolabelled toys are subject to a requirement concerning residual monomers from the polymer production that are CMR classified, amongst other things. The requirement applies to materials with which the child may come into contact or that constitute over 5% by weight of the toy. In addition, bisphenol A is prohibited as an ingoing substance in chemical products. There are further requirements concerning emissions of formaldehyde from foam, textiles, hides/skins, and leather. Wood-based panels are also subject to requirements concerning the content of formaldehyde or emissions of formaldehyde. There is also a requirement concerning formaldehyde content in adhesives.