Swedish Society for Nature Conservation|Good Environmental Choice

Textiles

Criteria 2012:3

Bra Miljöval

Good Environmental Choice
Swedish Society for Nature Conservation's ecolabelling

The Swedish Society for Nature Conservation (SSNC) is a non-profit organisation that is independent of political and religious affiliations. We are driven by an ambition to preserve the environment and protect people's health. It is partially due to us that seals, sea-eagles and peregrine falcons are no longer endangered species in Sweden. We promote biological diversity, and strive to prevent climate change, acidification, eutrophication, the spread of dangerous chemicals and much more.

However, it is not enough to protect nature in reserves or stop individual polluters. We need to reduce our total environmental impact. Companies that adapt their production methods and products to reduce the burden on the environment play a vital role in this work.

Good Environmental Choice is SSNC's own ecolabel and one of the tools we use to drive development towards a sustainable society. Good Environmental Choice places high environmental requirements on the products and services that it approves for labelling.

Thanks to Good Environmental Choice, hundreds of products have been reformulated and environmentally adapted. Ecolabelling has produced concrete results. For example, Good Environmental Choice labelling has almost completely eliminated the environmentally hazardous surfactant LAS from Swedish detergents.

Another example is that electricity labelled with Good Environmental Choice has placed requirements on water flow through hydroelectric power plants, and, through this, has increased the biological life in the affected rivers.

Good Environmental Choice is a part of the SSNC's work on consumer power. The Green Consumerism network comprises active members who run the green consumerism work in our regional groups around the country. For example, they conduct the Green Consumer Week campaign every year. Thanks to this campaign, the range of products in most supermarkets is becoming increasingly environment friendly. In the eyes of consumers, the Good Environmental Choice label is a symbol they can trust. For licensees, the label brings competitive benefits.

Good Environmental Choice criteria currently exist for the following products and services:

- Textiles
- Electrical energy
- District cooling
- Heat energy
- Freight transport
- Passenger transport
- Chemical products
- Car and single-family home insurance
- Grocery stores
- Flower shops
- Paper

Bra Miljöval

Read more about Good Environmental Choice at www.bramiljoval.se

The criteria can be ordered via e-mail: gbg@naturskyddsforeningen.se or downloaded from www.bramiljoval.se

For further information, contact the Swedish Society for Nature Conservation, Norra Allégatan 5, SE-413 01 Göteborg, Sweden. Tel: +46 (0)31-711 64 50, fax: +46 (0)31-711 64 30, e-mail: gbg@naturskyddsforeningen.se

NOTE: This text is a translation. The original Swedish version always prevails.

Contents

Preparation: Weronika Rehnby, Andreas Prevodnik.
Layout: Ingela Espmark, Carina Grave-Müller

NOTE: This text is a translation. The original Swedish version always prevails.

Foreword

The Good Environmental Choice Textiles ecolabel is one of the tools used by the Swedish Society for Nature Conservation (SSNC) to guide progress towards a sustainable society. Eco-abelling is intended to reduce the use of harmful chemical substances in the production of textiles.

The criteria for Good Environmental Choice Textiles impose requirements regarding the substances' toxicity to aquatic organisms and degradability in aquatic environments, as well as their bio-accumulability. The chemicals must not constitute a health hazard to those working with textile preparation, nor expose the consumer of the end product to health risks. The criteria contain requirements relating to production site parameters, such as energy consumption and the treatment of wastewater. SSNC also requires that the companies that have products certified under Good Environmental Choice takes into account the ethical and social requirements. There are also requirements on the packaging of the product delivered to the consumer.

The criteria for Good Environmental Choice Textiles permit the labelling of products that primarily comprise cellulose fibres and protein fibres. Good Environmental Choice also allows the labelling of recycled textile material. Good Environmental Choice approves the GOTS (Global Organic Textile Standard) ecolabel as verification for a series of requirements in the criteria for Good Environmental Choice Textiles.

Most countries outside the EU do not impose any requirements regarding the declaration of chemicals' inherent effects in the same way as within the EU. It is of the utmost importance for companies applying for Good Environmental Choice to ensure that the potential exists to produce the documents that are required in order to assess the included chemicals' inherent properties, as mentioned previously.

The criteria for Good Environmental Choice Textiles have been ratified by the Secretary General of the Swedish Society for Nature Conservation. A number of licensees, individuals and companies have shared their valuable knowledge and opinions, for which we thank them.

Eva Eiderström
Head of Good Environmental Choice

Purpose

The criteria for Good Environmental Choice Textiles must work to ensure that the consumer is given the opportunity, through an active choice, to purchase textile products that have been produced in a sustainable manner. As a result of the requirements that are imposed on the textiles, the consumer will know that a particularly high level of consideration has been given to the environment and to people's health.

The criteria will provide guidance to those companies that want their textile products to be produced in a way that looks after a sustainable society. By choosing to ecolabel in accordance with Good Environmental Choice Textiles, the company is demonstrating its environmental and social responsibility, and at the same time can communicate this to the customer.

Scope of the criteria

The criteria apply from 1 April 2012 until the next version enters into force. After a review of the criteria 2015-04-01 it has been decided that the criteria are relevant to continue. New criteria will enter into force no earlier than 2016-04-01.

The criteria cover the following textile areas:
– Fibre and Finishing
– Second hand
– Re-design

The criteria for Good Environmental Choice Textiles include requirements regarding various types of fibre and other materials, the inherent environmental and health properties of the chemicals used, specific preparation processes, as well as the treatment of wastewater from wet processing. There are also requirements for the packaging of the end product, the environmental policy of the licensee and requirements for adopting fundamental social responsibility in production.

Both fibres and the wet processing for a textile product have to satisfy the requirements set out in the criteria in order for the product that can be labelled in accordance with the Good Environmental Choice.

The requirements for Fibre and Finishing as well as for Re-design where the alteration has been achieved chemically are divided into two levels: one level with stringent requirements (Class I) and one level where certain deviations may be made (Class II). The level where deviations may be made still entails that products produced according to these requirements are good alternatives from an environmental perspective. Classes I and II can be combined.

In the criteria document, requirements apply at the level with stringent requirements, Class I, unless otherwise specified. Deviations are marked with Class II.

Class I

Applies to

- Products made from new fibres, and where the most stringent requirements are satisfied for Fibre and Finishing.
- Second hand comprising reused material in the form of textile products that have not been reprocessed.
- Re-design comprising recycled material in the form of textile products that have been altered, for example by means of re-sewing, although without the use of dyes and chemical treatments.
- Re-design comprising recycled material in the form of textile products that have been altered, and where part of the alteration has been carried out with the aid of dyes and chemical treatments that satisfy the most stringent requirements stipulated in the criteria.

Class II

Applies to

- products made from new fibres and where deviations may be made from the requirements in Class I, although the deviation is deemed to be minor and still a good alternative from an environmental perspective. In certain parts there are no

alternatives for Class I, only for Class II, as there are currently no sufficiently good alternatives available.

- to recycled material in the form of textile products that have been altered, and where part of the alteration has been carried out with the aid of dyes and chemical treatments that satisfy the requirements for Class II, but not the requirements for Class I.

This version of the Good Environmental Choice Textiles criteria provides the opportunity to use GOTS (Global Organic Textile Standard) as verification of the requirements for Good Environmental Choice. Certain supplementary requirements to Good Environmental Choice Class I must be satisfied in addition to the GOTS certificate, however (Section 9).

GOTS-approved ingredients satisfy many of the requirements relating to chemicals in Section 5, which is why such ingredients can be used in the fibre production and the wet processing processes for textiles that are to be labelled with Good Environmental Choice.

The criteria document comprises eleven sections, containing requirements that are specified for fibres, chemicals and wet processing.

Product/product group

A company may apply for a licence for a product or a product group. The products included in a product group may in turn be available in product variants, such as different colours. For a product group, all the included products consist of the same type of textile. The accessories can vary between the products, but must be approved for the product group. The products may be available in various sizes.

All individual products in a product group must have the same fibre content. An example of this is a product group where all the products consist of 50% cotton and 50% flax. If the distribution is altered to 60% cotton and 40% flax, it is necessary to apply for a new licence.

All materials included in a licensed product are registered as approved for Good Environmental Choice Textiles, and can be used by the licensee in the case of new applications. In the information about the ecolabelled product provided to the customer, the licensee must indicate what proportion satisfies the requirements for the level with the most stringent requirements (Class I), and where appropriate what proportion deviates from this level (Class II), see figure 1. The dark colour shows that the requirements for Class I are satisfied, whereas the lighter colour shows that Class II is achieved. The labelling profile is combined with the Good Environmental Choice logo. More information and logos will be find as appendix on the website of the Swedish Society for Nature Conservation.

Fig. 1. Examples of labelling profiles for Good Environmental Choice Textiles.

1 Product composition

A licensed textile product, individual or as part of a product group with a license, can consist of one or more materials with various fibres and colours. The product can be a yarn, a fabric, a garment, etc. The garment in turn can include various sewing threads, zips, buttons, motif prints, etc.

In these criteria, textiles comprise natural or man-made fibres, e.g. regenerated fibres made of cellulose and synthetic fibres based on petroleum products.

In a product group covered by the same license, are all products manufactured by the same type of material, with the same fibre content and finishing.

A textile product that is labelled with Good Environmental Choice must primary consist of textile material, where the fibre content to at least 95% including finishing, satisfy the requirements in the criteria. It is desirable for the product to satisfy these stringent requirements, although in certain respects it is possible to deviate from these. In the criteria, this is indicated with Class II.

Finishing in this context means that the textile material has been further refined, e.g. through bleaching, dyeing, printing, softening.More generally is the common expression wet processing, where finishing is one part.

The product may contain non-textile accessories such as buttons and buckles, and these must satisfy stipulated requirements. There are no specified requirements as regards limiting the weight of these accessories, although the product must be perceived as a textile.

Percentage rates relating to proportions of the textile content in the product refer to the weight of fibres in the conditioned state in accordance with standard method ISO 139:2005.

Conditioned state means that the material has been placed in an area with a predetermined temperature and humidity level. Differences in moisture absorption in the fibre are evened out.

The product is something that is sold on to the customer and that bears the Good Environmental Choice eco-label. It is for this product that the licence is issued.

1.1 Newly produced textile

1.1.1 The textile material may be produced from new or recycled material. For synthetic fibres such as polyester and polyamide, no fibres that have been produced from new material may be included in consumer products, with the exception of polyurethane fibres (elastane). Only synthetic fibres made from recycled material according to Section 3.6 are permitted. The recycled material can come from both textiles and plastic materials, e.g. PET bottles.

For a product destined for industrial laundry a maximum of 30% polyester from new raw material is accepted.

In the product, a maximum of 5% fibres may be included that do not satisfy all the relevant requirements in the criteria for the fibre in question. This fibre content, with wet processing, must satisfy the requirements in Section 5.1.1, however.

Padding material of natural origins, which satisfies the requirements in 4.2.1, may be included in the product in unlimited amounts.

1.1.2 A textile material may contain a maximum of 10% by weight of polyurethane fibres (elastane).
Class II

1.2 Second hand – Reused textile

For textiles, second hand is defined in the criteria as a textile product that has been collected after having been used by the consumer or another user. The content of second hand textiles is not assessed, except that the requirements in 1.2.1 must be satisfied.

1.2.1 Second hand textiles with an identified content of PVC (polyvinyl chloride) may not be labelled Good Environmental Choice. This means that textiles containing PVC must be placed separately from other eco-labelled textiles.

An identified content of PVC means that it is possible to read that the product contains PVC from its materials label.

A material label may be sewn into the product.

1.3 Re-design – Reused and altered textile

Re-design for textiles is defined in the criteria as a new design created from reused material or production waste. Process stages such as dyeing, printing, etc., may be added. The product may contain new textile materials labelled with Good Environmental Choice or GOTS.

In the product a content of maximum 5% fibre material not satisfying relevant requirements in the criteria is accepted. The fibre content with finishing must still satisfy the requirements in Section 5.1.1.

1.3.1 Re-designed products marked with Good Environmental Choice must primarily consist of textile material. Newly produced, non-textile accessories such as buttons and buckles must satisfy the requirements in Section 4. No requirements are placed on accessories that are re-used. PVC may not be present in the product.

Unused accessories that because of age or defects no longer are in commercial use are permitted. If these are made of metal or leather, they must not be placed in direct contact with the skin. Accessories where there is reason to believe that they contain hazardous substances must not be used. The Swedish Society for Nature Conservation reserves the right not to accept unused, old accessories in violation of the requirements in the criteria or policies.

1.3.2 Re-design can entail the creation of different types of textile product. The product can be re-sewed, or alternatively re-sewed and supplemented with used material, material labelled with Good Environmental Choice Fibre and Finishing or GOTS. The product can also be altered by means of a process stage being added, such as garment printing, over-dyeing etc. and must then satisfy the requirements in Sections 4-6 and 7.2.

Justification for the requirements

[1] Within the EU and in the Reach chemicals legislation, a product is defined as an object which, during production, acquires a particular shape, surface or design, which determine its function to a greater extent than its chemical composition (Article 3.3). In the criteria for Good Environmental Choice Textiles, a product is placed on an equal footing with a product in Reach.

[1.1.1] Synthetic fibres made of recycled textile material and other plastic materials can only achieve Class II, as the criteria do not stipulate requirements regarding chemicals and processes for the production of the fibres. However, it is positive that the extraction of finite resources such as oil is decreasing, as the raw material for newly produced fibres comprises recycled material.

[1.2.1, 1.3.1] Printing and PVC coatings often contain softening phthalates as plastizicers. Many phthalates are endocrine disruptors and affect the reproductive system.

2 Fibres

Different types of fibre can be used in textile products labelled with Good Environmental Choice Textiles. The fibres can be natural fibres such as cotton or wool, man-made fibres such as viscose, PLA fibres or synthetic fibres made from recycled material such as polyester. This section presents the fibres that can be included in greater detail. Requirements are imposed where the production of the raw material for the fibres has a major impact on the environment.

No fibres made of metal, glass, minerals or with a halogen content may be included in the textile product.

Section 3 looks at the requirements that must be satisfied in the production of fibres.

2.1 Seed fibres – cotton, kapok, etc.

2.1.1 Cotton must have been grown organically or in conversion. The certification of the cultivation method must be carried out according to the IFOAM standard by an inspection body accredited by IFOAM or certified in accordance with ISO-guide 65.

In conversion is cultivation during the changeover to organic farming.

IFOAM (International Federation of Organic Agriculture Movements).

ISO 65 is an international standard for parties that certify other parties.

2.1.2 The cotton must have been grown with the aim of reducing the consumption of pesticides, herbicides, inorganic fertilisers and water, as well as improving the living conditions for cotton farmers in accordance with the criteria for BCI, CmiA or equivalent. These criteria must be checked by an accredited organisation, and must have been approved as a basis for Good Environmental Choice eco-labelling.
Class II

BCI (Better Cotton Initiative)

CmiA (Cotton made in Africa)

2.1.3 Kapok must have been collected in accordance with the rules of the Fair Wild Foundation.

The Fair Wild Foundation is an initiative that has set up guidelines for the sustainable use of natural resources. The initiative also has a social aspect, the aim of which is to create fair working conditions for those involved in collecting materials in nature.

2.2 Bast fibres – flax, hemp, bamboo, aloe, nettles, ramie, sisal, jute, etc.

2.1.1 Flax and hemp must have been grown organically or in conversion. The certification of the cultivation method must be carried out by an inspection body accredited by IFOAM or certified in accordance with ISO-guide 65.

FSC (Forest Stewardship Council) works for the sustainable management of forests.

Regenerated fibres refer to types such as xanthogenate-based viscose and N-methyl morpholine N-oxide-based viscose.

2.2.2 Bamboo must come from third-party certified bamboo cultivations or forest areas. The certification must be carried out according to the FSC standard by an inspection body accredited by FSC or certified in accordance with ISO-guide 65. Bamboo can be used to produce bast fibres or regenerated fibres, known as bamboo viscose.

2.2.3 Conventionally grown bast fibres, with the exception of bamboo, are permitted as they generally have a low environmental impact in the cultivation stage.
Class II

2.2.4 The harvesting of vegetable raw materials from nature for the production of

bast fibres must have been carried out according to the rules of the Fair Wild Foundation.

2.3 Fibres produced from forest raw materials

2.3.1 Forest raw materials that are used to produce regenerated cellulose fibres must come from FSC-certified forests. The certification must be carried out according to the FSC standard by an inspection body accredited by FSC or certified in accordance with ISO-guide 65.

2.4 Fibres from PLA (Poly Lactic Acid)

2.4.1 Crops that are used for the production of PLA must have been grown organically or in conversion. The certification must be carried out according to the IFOAM standard by an inspection body accredited by IFOAM or certified in accordance with ISO-guide 65.

PLA (polylactic acid) is a polymer of lactic acid, which is produced from the fermentation of starch from e.g. maize, wheat, sugar cane and sugar beet.

2.4.2 Crops that are used for the production of PLA must not be genetically modified (GMO). The certification must be carried out according to the IFOAM standard by an inspection body accredited by IFOAM or certified in accordance with ISO-guide 65.

Class II

GMO (Genetically Modified Organism)

2.5 Keratin fibres – wool, etc.

2.5.1 Wool and other keratin fibres that come from livestock that is not free range, must have been dealt with in accordance with the rules for organic animal husbandry or animal husbandry in conversion. The certification of livestock must be carried out according to the IFOAM standard by an inspection body accredited by IFOAM or certified in accordance with ISO-guide 65.

Animal husbandry in conversion refers to the changeover to organic animal husbandry.

2.5.2 Sheep's wool from Australia must come from herds that can demonstrate non-mulesed merino (N.m.m.) certification. Licensees that purchase wool from other countries must submit documentation that provides verification that mulesing has not taken place.

Mulesing means that the sheep, while alive, have had wool-bearing skin removed from their hind-quarters to prevent attack by parasitic flies.

N.m.m. (non-mulesed merino) is a third-party certification of wool from the Merino Company in Australia. It guarantees that the wool comes from sheep that have not been subjected to mulesing.

2.5.3 Conventional wool from camel, llamas, alpacas, yak, cashmere sheep and cashmere goats is permitted if it can be verified that the animal husbandry has been extensive, i.e. the animals have been free range as far as the climate permits.

2.6 Fibres from silk

2.6.1 Silk must come from silk moth larvae that have been reared on leaves from mulberry trees in an organic plantation or in conversion. The certification of the plantation must be carried out according to the IFOAM standard by an inspection body accredited by IFOAM or certified in accordance with ISO-guide 65.

2.6.2 The gathering of wild silk (tussah, eri, muga, etc.) must have been conducted in accordance with the rules of the Fair Wild Foundation.

2.7 Raw material for technical protein fibres

2.7.1 Plant material and animal material for the production of protein for technical protein fibres must have been grown organically or in conversion. The certification must be carried out according to the IFOAM standard by an inspection body accredited by IFOAM or certified in accordance with ISO-guide 65.

Technical protein fibres are created synthetically, as opposed to keratin fibres, which are protein fibres that belong to the natural fibres group. Examples of technical protein fibres include casein-based and soya protein-based fibres.

2.7.2 Plant material (with the exception of soya for Class II according to section 2.7.3) and animal material for the production of protein for technical protein fibres may not come from genetically modified organisms (GMO).

2.7.3 Soya for the production of protein for technical protein fibres must come from producers that are members of RTRS.
Class II

RTRS (Round Table on Responsible Soy) works to reduce negative environmental effects and social effects of soya cultivation.

2.8 Fibres from recycled material

2.8.1 Recycled fibres, with the exception of synthetic fibres, must have been separated from textile that has been used by a consumer or other user, or must comprise production waste.

2.8.2 Recycled material for synthetic fibres must be textile material that has been collected after having been used by a consumer or other user, or can comprise production waste. The recycled material can also comprise other reused plastic materials, e.g. PET bottles.
Class II

2.9 New polyester fibres for products destined for industrial laundry

2.9.1 Polyester fibres from new resources may be used in textiles to be industrially laundered and re-circulated. The textile product may contain a maximum of 30 % by weight of polyester.
Class II

Justification for requirements

[2.1.2] Cotton from BCI (Better Cotton Initiative) and CmiA (Cotton made in Africa) is environmentally a better alternative than conventional cotton; BCI and CmiA also include social requirements that e.g. prohibit child labour.

[2.2.1] Organic flax and organic hemp have been produced without inorganic fertilisers and other chemicals that have an impact on the environment.

[2.2.3] Conventional bast fibres are normally produced with the limited use of inorganic fertiliser and other chemicals that have an impact on the environment.

[2.4.2 and 2.7.2] Genetically modified organisms can spread unwanted genes to closely related species and contribute to the development of resistance in weeds and pests. The risks associated with genetically modified organisms for consumers and ecosystems have been inadequately investigated in many cases.

[2.7.3] The supply of organic soya on the market is very limited. The RTRS initiative, to which major soya producers are affiliated, works to reduce negative environmental and social effects of soya production.

[2.8.2] Synthetic fibres from recycled materials are Class II, because no requirements are imposed regarding analysis, nor on the content of the recycled material.

[2.9.1] Working clothes, textiles for healthcare and the hotel- and restaurant sector are examples of textiles which are industrially laundered and where requirements on long service life is requested. A fabric blended with polyester has a better durability, which makes it last longer and the need to buy new textiles will be reduced. Less energi is needed to dry the polyester part comparing to dry cotton. Since the total environmental benefit is assessed as high and the availability of recycled polyester on the market is limited, a part of polyester from new resources is permitted.

3 Fibre production

3.1 Bast fibres

3.1.1 Bast fibre extraction may take place by means of dew retting, enzymatic retting, ultrasound extraction, mechanical extraction or water retting in association with water treatment plants.

Bast fibre extraction may also be performed chemically, provided the chemicals satisfy the requirements relating to chemicals in Section 5.

Dew retting is retting that takes place in the harvested crop directly in the field, under the influence of air humidity, rain and micro-organisms.

Water retting means that the retting of the crop takes place entirely immersed in water. This is conventionally performed in natural watercourses, although it can also be carried out under controlled conditions in basins connected to water treatment plants.

3.1.2 Wastewater from the retting of hemp must be treated to at least 75% with regard to COD/TOC, and for flax and other stem fibres to at least 95%. The requirements in Section 7.2 must also be satisfied by the treated water.

COD (Chemical Oxygen Demand)
TOC (Total Organic Carbon)

3.1.3 The cottonising of bast fibres may take place enzymatically, using ultrasound or mechanically, as well as chemically, provided the chemicals satisfy the requirements relating to chemicals in Section 5.

3.1.4 The treatment of wastewater from cottonising processes must satisfy the requirements in Section 7.2.

Cottonising is a process in which pectins are removed from coarse bast fibres, and they are then split up into finer fibres with properties that resemble those of cotton fibres.

3.1.5 Enzymes from genetically modified micro-organisms are permitted for enzymatic retting and cottonising. However, the enzymes must be free from residues of the micro-organisms used in their production.

3.2 Regenerated cellulose fibres

The raw material for regenerated cellulose fibres can come from various sources, such as timber, bamboo, etc. The cellulose is dissolved and spun out to form infinitely long, thin fibres (filaments) in open and closed systems. The filaments can then be cut to staple fibres in defined lengths. Various types of viscose come under the heading of cellulose-based regenerated fibres.

3.2.1 Waste material such as carding waste and other process waste from seed and bast fibres, and which satisfies the requirements in Section 2, may be used to make pulp for the production of regenerated cellulose fibres.

3.2.2 The pulp for regenerated cellulose fibres may only be bleached using totally chlorine-free methods, in accordance with the requirements in Section 5.1.1. These methods include peroxide and ozone bleaching.

3.2.3 Emissions of sulphur dioxide into the air during pulp production may on average not exceed 0.7 g/kg of pulp per year.

3.2.4 Emissions of nitrogen oxides into the air during pulp production may not exceed 2 g/kg of pulp per year.

3.2.5 The COD content of the treated wastewater from pulp production may on average not exceed 40 g/kg of pulp per year. The requirements in Section 7.2 must also be satisfied by the treated water.

3.2.6 The phosphorus content of the treated wastewater from pulp production may on average not exceed 50 g/tonne of pulp per year.

3.2.7 Regenerated cellulose fibres must have been produced in a closed system. Lyocell fibres are an example of this.

3.2.8 Solvents used in the production of regenerated cellulose fibres are exempted from requirement 5.1.1, but they must be recovered to at least 99%.

3.2.9 Regenerated fibres may be produced from xanthogenate-based viscose processes in a non-closed system. Potassium sulphate or sodium sulphate and hydrogen sulphide must be recovered to at least 80%.
Class II

Xanthogenates are salts and alkyl esters of xanthate acid or dithiocarbonic acid.

3.2.10 Emissions of sulphur dioxide into the air during the production of regenerated fibres may on average not exceed 25 g/kg of fibres per year.

3.2.11 Enzymes from genetically modified micro-organisms are permitted for the bio-polishing of regenerated cellulose fibres. However, the enzymes must be free from residues of the micro-organisms used in their production.

Bio-polishing of viscose material entails burls of cellulose being broken down by the enzyme. This achieves a smoother surface.

3.2.12 Emissions of zinc in treated wastewater may on average not exceed 0.2 g/kg of fibre filament or staple fibre per year. The requirements in Section 7.2 must also be satisfied by the treated water.

3.3 Fibres from PLA (Poly Lactic Acid)

3.3.1 Enzymes from genetically modified micro-organisms are permitted for starch extraction from crops. However, the enzymes must be free from residues of the micro-organisms used in their production.

3.3.2 Acids used for the extraction of starch from crops must satisfy the requirements relating to chemicals in Section 5.

3.3.3 When producing PLA from lactic acid using a solvent-based method, the solvents are exempted from requirement 5.1.1. However, the solvents must be recovered to at least 99%.

3.3.4 Permissible co-polymers are ε-caprolactone (CAS 502-44-33) and polyethylene glycol (CAS 25332-68-3).

Co-polymers are compounds that are polymerised into other polymers and influence their properties. The choice of co-polymer is decisive for the degradability of PLA.

3.3.5 In the case of solvent spinning of PLA, the solvents are exempted from requirement 5.1.1. However, the solvents must be recovered to at least 99%.

3.3.6 Produced PLA fibre may contain max. 4 mg/kg of extractable tin or 30 mg/kg of extractable antimony from polymerisation catalysts or stabilisers.

3.3.7 If aluminium, zinc, tin and antimony are present in the polymerisation catalysts, the respective emissions of these metals in treated wastewater as a mean annual value may not exceed 0.3 g/kg of fibre.

3.3.8 Wastewater from carbohydrate extraction for fermentation to lactic acid, and from the production of PLA, must be treated to achieve a reduction of COD/TOC of at least 85%.The requirements in Section 7.2 must also be satisfied.

3.4 Technical protein fibres

3.4.1 Chemicals that are used in the production of technical protein fibres, such as soya and casein fibres, must satisfy the requirements relating to chemicals in Section 5.

3.4.2 Wastewater from the production of technical protein fibres must be treated to at least 85% with regard to COD/TOC. The requirements in Section 7.2 must also be satisfied by the treated water.

3.5 Polyurethane fibres (elastane)

3.5.1 Requirement 5.1.1 must be satisfied with regard to monomers and additives.
Class II

3.5.2 The production of polyurethane fibres is exempted from requirement 5.1.1 with regard to aromatic solvents. However, the solvents must be recovered to at least 99%.

3.5.3 In the case of solvent spinning of polyurethane fibres, the solvents are exempted from requirement 5.1.1. However, the solvents must be recovered to at least 99%.

3.5.4 Emissions of aromatic di-isocyanates during polymerisation and spinning shall on averaged be less than 5 mg/kg of fibre per year.

3.6 Synthetic fibres from recycled material

Specified emissions apply in the event of monomer production, polymerisation and granulation.

3.6.1 Synthetic fibres may only be produced from recycled material from polyamide, polyester and polypropylene.
Class II

3.6.2 Chemicals and dyes for the production of fibres from recycled material must satisfy the requirements in Sections 5 and 6. The content of the recycled material and the fibres produced must satisfy the requirements in Section 5.1.1.

3.6.3 In the case of the production of polyamide and polyester, the solvents are exempted from the requirements in Section 5.1.1. However, the solvents must be recovered to at least 99%.

3.6.4 The average emissions of nitrous oxide may not exceed 10 g/kg per year for polyamide 6 fibre, and 50 g/kg per year for polyamide 6.6 fibre.

3.6.5 Emissions of volatile organic compounds (VOC) during polymerisation may on average not exceed 1 g/kg of manufactured polyester resin per year.

Volatile organic compounds (VOC) are compounds which, at 293.15 K, have a vapour pressure of ≤0.01 kPa, or which possess equivalent volatility under the conditions of use.

3.6.6 The antimony content of polyester fibre may not exceed 260 mg/kg.

3.6.7 For polypropylene, the average emissions of nitrous oxides may not exceed 12 g/kg per year, and 11 g/kg per year for sulphur dioxide.

3.6.8 No halogenated monomers may be present in synthetic polymers.

3.7 Recovered fibres of natural origin

3.7.1 Chemicals that are required to recover fibres from recycled textiles must satisfy the requirements in Section 5.

3.7.2 The treatment of wastewater from the recovery of fibres must satisfy the requirements in Section 7.2.

3.8 Polyester fibres from new resources

3.8.1 Requirement 5.1.1 must be satisfied with regard to monomers and additives.
Class II

3.8.2 The requirements in Section 3.6.3, 3.6.5, 3.6.6 and 3.6.8 must be satisfied.

Justification for the requirements

[3.1.2, 3.1.4, 3.2.5, 3.2.6, 3.2.12,3.3.8, 3.4.2, 3.7.2] The breakdown of chemical compounds consumes oxygen and thus places a load on the ecosystem at the point where the breakdown occurs. For this reason, wastewater must be treated to remove oxygen-consuming compounds to a high degree. If there is a difference in the pH and the temperature between the wastewater and the water into which the wastewater is discharged, this can give rise to problems for the plants and animals that live there. Phosphorus can cause eutrophication if it is released into the environment.

[3.1.5, 3.2.11 and 3.3.1] The availability on the market of enzymes that are not derived from GMO is limited.

[3.2.2] Bleaching with chlorine-containing compounds can produce organochlorine by-products that are persistent, bi-accumulactive and may act as endocrine disruptors.

[3.2.3, 3.2.4, 3.2.10, 3.6.7] The emission of sulphur and nitrogen into the atmosphere contributes to acidification, as many sulphur compounds and nitrogen oxides form acids when they react with moisture. Nitrogen contributes to eutrophication and the formation of ground-level ozone.

[3.2.8, 3.3.3, 3.3.5,3.5.2, 3.5.3, 3.6.3] Many solvents have negative environmental and health-related properties, but they are required in certain fibre preparation processes. In order to minimise the risk of environmental and working environment problems, solvents must be recovered to a high degree.

[3.2.12] Zinc is classified as highly toxic to aquatic organisms and can cause adverse long-term effects in the aquatic environment.

[3.3.4] ε-caprolactone and polyethylene glycol are readily degradable and have low toxicity.

[3.3.7] Because metals can be present in the catalysts used in the production of lactic acid, an exception is made from the general prohibition of metals. Many metals are toxic and their emissions must be limited.

[3.5.2] Approx. 90 % of the world's production of polyurethane fibres (elastane) takes place using a dry spinning method, which requires the polyurethane polymers first to be dissolved in aromatic solvents.

[3.5.4] The majority of aromatic di-isocyanates are toxic if inhaled, and some are carcinogenic, toxic to aquatic organisms and can cause harmful long-term effects in the environment.

[3.6.5] Volatile organic compounds can represent an environmental problem and a problem in the working environment.

[3.6.6] Antimony trioxide, which is generally used as a catalyst in polyester polymerisation, is suspected of being carcinogenic.

4 Other materials, non-fibres

4.1 Accessories for manufacturing

A textile product that is given the Good Environmental Choice ecolabel may contain non-textile accessories such as buttons, buckles and zips. The accessories must satisfy stipulated requirements. There are no specified requirements as regards limiting the weight of these accessories, although the product must primarily consist of textile material.

Certain accessories are not visible, such as supporting frames, which contribute to the shape of the product and may be present in collars, rucksacks, peaks on headgear, etc.

4.1.1 The accessories may not be made from endangered tree species, nor from materials derived from endangered animal species. The species used must not be listed in the Appendices to the UN Convention on International Trade in Endangered Species of wild Flora and Fauna (CITES), nor be included on the IUCN's "Red List".

4.1.2 Leather and fur may only be derived from animals that have been reared for meat production.

Fur is defined here as animal skin to which the hair covering is still attached.

4.1.3 The accessories must not contain PVC, phthalates or halogenated organic compounds e.g. perfluorinates.

4.1.4 Metal accessories must not be made of chromium and any metal impurities must be less than 0.2 mg/kg of arsenic, 0.2 mg/kg of lead, 0.1 mg/kg of cadmium, 0.02 mg/kg of mercury, or 1 mg/kg of nickel. The listed substances may not be deliberately added.

4.2 Padding material of natural origin

Padding material can contribute to the form, comfort or insulation of the product.

4.2.1 Padding material can consist of chicken and duck down, horsehair or vegetable residual products that do not come from endangered plant species.

Feathers and down may only come from birds that have been reared for meat production, and the down or feathers must not have been plucked from living birds.

4.3 Membrane, film, foil, film transfer print, foam, etc.

This refers to material layers of non-textile material that are joined with a fabric in a process known as lamination. This can take place with our without adhesive. Flame lamination of polyurethane foam is not permitted.

A film or membrane can provide the laminated fabric with properties such as waterproofing, and at the same time allow the laminated fabric to 'breathe'. The size of a film can also be limited, such as film transfer prints on garments.

4.3.1 The requirements stipulated in Sections 5 and 6 regarding included substances and chemical compounds must be satisfied for the material layers that are laminated with fabric.

4.3.2 The requirements stipulated in Section 3.6 regarding the production of synthetic fibres from recycled material also apply to the production of material layers from the relevant polymers.

4.3.3 The total weight of one or more complete material layers of a synthetically produced polymer may not exceed 25 g/m^2. For non-woven material processed through chemical bonding, the weight of adhesive, melt adhesive, melt fibre, etc., must be included.
Class II

4.3.4 A material layer made from a synthetically produced polymer, which is placed on a limited area on the textile product e.g. in the form of a transfer print, may constitute max. 10% of the total weight of the fabric in the product. In cases where the fabric contains polyurethane fibres, the combined weight of these and the polymer layer may not exceed 10% by weight.
Class II

4.3.5 Adhesive that is used during lamination must satisfy the requirements in Sections 5 and 6.

4.3.6 During lamination, material layers or adhesive made of polyurethane may produce emissions of aromatic di-isocyanates of max. 5 mg/kg of laminated fabric per year.
Class II

4.3.7 For material layers made of polyurethane, the content of included isocyanates must be indicated. A description of how the bonding process takes place and what protective measures have been implemented to reduce any health risks must be enclosed with the application.

4.4 Backing material

4.4.1 FSC-certified caoutchouc (natural rubber) may be used as backing material on carpets and other textile products, as long as these are perceived as being principally textile.

Justification for the requirements

[4.2.1] The requirement that the animals must have been reared for meat production will minimise the risk of down and feathers being sourced from live animals.

[4.3.3] There is now considerable demand for fabric that is water repellent, waterproof and breathable. The films and membranes that are used are produced from synthetic polymers and provide the material with excellent functional properties. The criteria will influence developments towards the use of less environmentally harmful materials as well as the use of layers that are as thin as possible.

[4.3.6] The majority of aromatic di-isocyanates are toxic if inhaled, and some are carcinogenic, toxic to aquatic organisms and can cause harmful long-term effects in the environment.

[4.4.1] FSC-certification is required, as caoutchouc comes from certain tropical tree species. Caoutchouc is a renewable resource, but must only be sourced from sustainably managed forest.

5 Textile chemicals and dyes

Safety data sheets for chemicals and dyes are of considerable assistance when making assessments. In countries where the global classification system GHS is not applied for safety data sheets, the licensee must ensure that corresponding information is produced in some other way.

The licensee does not need to submit test results according to the analysis methods specified for each requirement in Appendix 2, provided it is not evident from the application documents that this is mandatory.

5.1 Recipes, textile chemicals and dyes

All actively added textile chemicals and dyes in every processing stage must be declared with their commercial name and principal supplier in the recipe for wet processing. The requirements regarding declaration also apply to oils used for carding, spinning, knitting, etc., as well as substances for stain removal. The requirements for information regarding content in the recipe do not apply to the production of man-made fibres and material layers such as films, etc.

Processing stages are all the manufacturing operations included in the production of a textile product, e.g. extraction of stem fibres, weaving, dyeing, stitching, etc.

A textile chemical or dye is defined as an element, chemical compound or a mixture of these. All textile chemicals or dyes have a commercial name.

The term textile chemical is used here for all chemicals that are used for the production of the textile product.

Textile chemicals and dyes are declared as follows:

1. Textile chemicals and dyes must be declared with a commercial name. Safety data sheets must be enclosed with the application.
2. For each textile chemical or dye in accordance with point 1, a verification must be submitted demonstrating that no chemical substances or compounds are included that are prohibited according to the criteria.
3. For each textile chemical or dye in accordance with point 1, a verification must be submitted demonstrating that these are not classified with prohibited risk phrases or hazard specifications.
4. Information about Recipes for wet processing must be enclosed with the application.

In this context the term dyes is used for soluble and insoluble colour substances with fiber affinity. Also pigments without fibre affinity are included.

No textile chemicals or dyes that, either on their own or together with another textile chemical or dye, are mixed in a chemical liquor or to form a paste, may be used if they do not satisfy the requirements in this criteria document.

5.1.1 Prohibited substances

The substances listed below may not be present in any process stage, irrespective of percentage content, unless an exception is defined in another requirement in the criteria for Good Environmental Choice Textiles. This also applies in those cases where the substances are part of a mixture, chemical compound, impurity or can be split.

The prohibited substances are listed to be specifically highlighted, although most of them by their classifications and other properties as toxicity etc. must not be used due to the reguirements in Sector 5.1.2-5.1.6.

- α-MES, α-methy-ester sulphonate
- Ammonia or ammonium compounds
- APEO, Alkylphenol ethoxylates
- Aromatic solvents
- Benzene, toluene and xylene
- DHTDMAC, DSDMAC, DTDMAC (Quaternary ammonium compounds)
- DPTA, Diethylene triamine penta acetic acid
- EDTA, Ethylene diamine tetra acetic acid
- Phthalates
- Halogenated solvents
- Halogenated phenols and their salts
- Halogenated organic compounds
- Hypochlorite or other chlorine-based bleaching agents
- Short-chain aldehydes, with up to 6 carbon atoms, such as acetaldehyde, formaldehyde and glyoxal
- LAS, Linear alkyl benzene sulphonates
- Metals, including the semi-metallic element arsenic and excluding iron
- NTA, Nitrilo-tri-acetic acid
- Organic tin compounds
- PAH, Polyaromatic hydrocarbons
- Perfluorinated organic compounds such as PFOS and PFOA,
  PVC, Polyvinyl chloride

The group of halogenated organic compounds includes specified solvents, phenols and their salts, as well as perfluorinated organic compounds. These are listed specifically for the sake of clarity.

The substances that are restricted in Annex XVII to the chemicals legislation REACH and the candidate list of particularly hazardous substances (SVHC, Substances of very high concern) prepared by ECHA (European Chemical Agency) are prohibited.

Metals and semi-metals denote those substances for which ETAD has threshold values for dyes and pigments, with the exception of iron.

5.1.2 Hazard statements/risk phrases (chemical substances or compounds)
Chemical substances or compounds included in textile chemicals or dyes must not be classified with one or more combinations of the hazard specifications/ risk phrases (H and CLP phrases according to GHS and EU Regulation No. 1272/2008, as well as R phrases according to EU Directive 67/548/EEC) in the table below.

R25 Toxic if swallowed	H301 Toxic if swallowed
R26 Very toxic by inhalation	H330 Fatal if inhaled
R27 Very toxic in contact with skin	H310 Fatal in contact with skin
R28 Very toxic if swallowed	H300 Fatal if swallowed
R39 Danger of very serious irreversible effects	EUH070 Toxic by eye contact H370 Causes damage to organs
R40 Limited evidence of a carcinogenic effect	H351 Suspected of causing cancer
R45 May cause cancer	H350 May cause cancer
R46 May cause heritable genetic damage	H340 May cause genetic defects
R48 Danger of serious damage to health by prolonged exposure	H372 Causes damage to organs through prolonged or repeated exposure H373 May cause damage to organs through prolonged or repeated exposure
R49 May cause cancer by inhalation	H350i May cause cancer by inhalation
R50 Very toxic to aquatic organisms	H400 Very toxic to aquatic life
R50/R53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	H410 Very toxic to aquatic life with long lasting effects
R54 Toxic to flora	– [1]
R55 Toxic to fauna	-
R56 Toxic to soil organisms	-
R58 May cause long-term adverse effects in the environment	-
R59 Dangerous for the ozone layer	EUH059 Hazardous to the ozone layer H420 Harms public health and the environment by destroying ozone in the upper atmosphere
R60 May impair fertility	H360F May damage fertility or the unborn child
R61 May cause harm to the unborn child	H360D May damage fertility or the unborn child
R62 Possible risk of impaired fertility	H361f Suspected of damaging fertility or the unborn child
R63 Possible risk of harm to the unborn child	H361d Suspected of damaging fertility or the unborn child
R68 Possible risk of irreversible effects	H341 Suspected of causing genetic defects H371 May cause damage to organs

1 No H phrase exists.

5.1.3 Toxicity and degradability in aquatic environments (chemical substances or compounds)

Chemical substances or compounds must satisfy one of the following combinations with regard to toxicity (LC_{50} or EC_{50}) and degradability. The assessment of compliance with this requirement is based on the trophic level for which the toxicity has the lowest level for LC_{50} or EC_{50}. All known trophic levels must be declared, and at least one. Chemical substances and compounds with LC_{50} or EC_{50} < 1 mg/l are always prohibited.

No requirements on degradability if LC_{50} or EC_{50} is greater than 100 mg / l.

If LC_{50} or EC_{50} is 1-100 mg/l the degradability must be at least 60-70% in 28 days according to OECD 301 or equivalent testing method, see Appendix 2.

Degradability refers to the extent to which a substance is broken down through biological and non-biological processes in water that must resemble normal water in nature.

The trophic level denotes and organism's position in the food web of an ecosystem. Toxicity data for the trophic levels of algae (primary), planktonic crustaceans (usually Daphnia) (primary) and fish (secondary) are usually declared in safety data sheets.

5.1.4 Hazard statements/risk phrases and eliminability in aquatic environments (chemical substances or compounds)

Eliminability is a measure of the reduction of Dissolved Organic Carbon (DOC) according to the OECD 303 A standardised degradability test. The test simulates the conditions in a water treatment plant.

Chemical substances or compounds classified with one or more the hazard statements/risk phrases in the following table are only permitted if they are eliminable to at least 80% in 28 days according to OECD 303 A or ISO 11733.

Substances or compounds that are weakly degradable, fat soluble and as such readily absorbed in organisms, and are toxic to aquatic organisms, can be classified with R53.

R53 May cause long-term adverse effects in the aquatic environment	H413 May cause long-lasting harmful effects to aquatic life
R51/R53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment	H411 Toxic to aquatic life with long-lasting effects
R52/R53 Harmful to the aquatic environment, may cause long-term adverse effects in the aquatic environment	H412 Harmful to aquatic life with long-lasting effects

5.1.5 Hazard statements/risk phrases (textile chemicals or dyes)

Textile chemicals or dyes must not be classified with one or more of the hazard statements / risk phrases in the following table.

R25 Toxic if swallowed	H301 Toxic if swallowed
R26 Very toxic by inhalation	H330 Fatal if inhaled
R27 Very toxic in contact with skin	H310 Fatal in contact with skin
R28 Very toxic if swallowed	H300 Fatal if swallowed
R39 Danger of very serious irreversible effects	EUH070 Toxic by eye contact H370 Causes damage to organs
R48 Danger of serious damage to health by prolonged exposure	H372 Causes damage to organs through prolonged or repeated exposure H373 May cause damage to organs through prolonged or repeated exposure

5.1.6 Biocide substances and compounds

The expression 'biocide substances and compounds' denotes substances and compounds that counteract the growth of micro-organisms, fungi and pests.

Biocide substances and compounds (e.g. preservatives) may not b e added in any process stage or during transport. In textiles chemicals or dyes biocide substances and compounds may be present at levels up to 0.1% by weight.

In alginate-based and starch-based products, biocide substances may be present at levels up to 0.5% by weight.

Alginate is a product that is extracted from brown algae.

Biocide substances that are present in textile chemicals or dyes at levels that are required to be declared according to regulations for safety data sheets (EU Regulation No. 1272/2008, GHS, or EU Directives 2001/58/EEC and /2006/EEC) must also satisfy requirements 5.1.1, 5.1.3 - 5.1.5

Biocide substances and compounds may not be classified with one or more of the hazard statements/risk phrases in the following table, if they are present in textile chemicals or dyes at levels that are required to be declared according to regulations for safety data sheets (EU Regulation no. 1272/2008, GHS, or EU Directives 2001/58/EEC and 1907/2006/EEC).

R42 May cause sensitisation by inhalation	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
R43 May cause sensitisation by skin contact	H317 May cause an allergic skin reaction

Justification for the requirements

[5.1.] There are no requirements regarding recipe information for producing man-made fibres or material layers in the form of films etc. However, other types of requirement relating to the processes during manufacture must be satisfied.

[5.1.3] The more toxic a substance is to aquatic organisms, the higher the requirements stipulated in respect of its degradability.

[5.1.4] The hazard statement H413 and risk phrase R53 are used for substances that are bioaccumulative or persistent. Such substaces are particularly dangerous because they remain in ecosystems for a long time and can be concentrated in the organisms higher in the food web. However, the hazard statement H413 and risk phrase R53 take no account of the 'eliminability' of a substance in water treatment.

[5.1.6] Biocide substances and compounds are often highly toxic, but they are necessary in certain textile chemicals, particularly those of vegetable or animal origin, in order to counteract degradation due to bacteria and fungi. Ingredients in the form of alginate and starch are extra sensitive. A number of biocide substances and compounds are highly allergenic, which can constitute a working environment risk and a risk to the consumer.

6 Wet processing including specific process stages

This section stipulates requirements relating to wet processing and specific process stages. All textile chemicals and dyes that are used in the processes must satisfy the requirements stipulated in Section 5. For dyes and pigments, the requirements in Sections 6.6 - 6.8 must also be satisfied.

6.1 Oils for carding, spinning, knitting, etc.

6.1.1 Oils that are used for carding, spinning, knitting, etc., must be declared and must satisfy the requirements in Section 5.

6.2 Warp size

6.2.1 Warp size containing ingredients such as starch, starch derivatives or carboxymethyl cellulose (CMC) may be used.

6.2.2 Warp size may comprise a maximum of 25% polyvinyl alcohol and polyacrylate, calculated based on the total amount of adhesive (dry weight), although in combination with ingredients in 6.2.1.
Class II

6.2.3 Warp size that satisfies 6.2.2 but not 6.2.1 must be recovered to at least 80% in order to achieve Class I.

6.2.4 Enzymes from genetically modified micro-organisms are permitted for desizing. The enzymes must be free from residues of the micro-organisms used in their production.

6.3 Non-woven

6.3.1 Non-woven material may be produced through mechanical bonding, with or without heat.

Non-woven, also known as fibre cloth, is a fabric made from staple fibres or filaments that have been bound together.

6.3.2 For non-woven material manufactured with the aid of chemical bonding, the chemicals included in adhesive, melt adhesive, melt fibres, etc., must satisfy the requirements in Section 5 and may constitute a maximum of 10% by weight.

In those cases when non-woven material is laminated or coated with a synthetic polymer layer, the combined weight of the adhesive, melt adhesive, melt fibres, etc., and the polymer layer may not exceed 10% by weight.
Class II

6.4 Washing, scouring and stain removal processes

6.4.1 Solvent-based wool scouring is exempted from requirement 5.1.1 with regard to halogenated solvents in closed systems. However, the solvents must be recovered from the water vapour that is emitted from the process and destroyed.

6.4.2 Pre-scouring of wool is exempted from requirement 5.1.1 with regard to ammonia, provided the scouring takes place in a closed system.

6.4.3 Wool fat must be recovered in the wool scouring mill. The quantity of wool fat in the wastewater before treatment may not exceed 40 g/kg of unwashed wool.

6.4.4 Wastewater from wool scouring mills must be treated in the production unit or in an external treatment plant. The COD in the treated water may on average contain a maximum of 45 g/kg of unwashed wool when it is discharged into the recipient. The requirements in Section 7.2 must also be satisfied by the treated water.

6.4.5 Wastewater from the scouring of silk must on average be treated (purified) to at least 85% with regard to COD/TOC. The treated water must also satisfy the requirements in Section 7.2.

6.4.6 Detergents labelled with Good Environmental Choice, the Swan mark or the EU Ecolabel are approved for use.

6.4.7 Chemical stain removal labelled with Good Environmental Choice, the Nordic Ecolabel or the EU Ecolabel is approved for use.

6.5 Mercerisation

6.5.1 Alkalis used in mercerisation must be recovered to at least 90%.

6.5.2 Alkalis used in mercerisation must be recovered to at least 50%.
Class II

6.6 Dyes and pigments

6.6.1 Metal impurities in dyes must not exceed the following limit values:

Antimony (Sb)	max. 50 ppm
Arsenic (As)	max. 50 ppm
Barium (Ba)	max. 100 ppm
Lead (Pb)	max. 100 ppm
Iron (Fe)	max. 2500 ppm
Cadmium (Cd)	max. 20 ppm
Cobalt (Co)	max. 500 ppm
Copper (Cu)	max. 250 ppm
Chromium (Cr)	max. 100 ppm
Mercury (Hg)	max. 4 ppm
Manganese (Mn)	max. 1000 ppm
Nickel (Ni)	max. 200 ppm
Selenium (Se)	max. 20 ppm
Silver (Ag)	max. 100 ppm
Tin (Sn)	max. 250 ppm
Zinc (Zn)	max. 1500 ppm

1 ppm corresponds to 0.0001%. Example: 1 ppm = 1 mg/kg

6.6.2 Metal impurities in pigments must not exceed the following limit values:

Antimony (Sb)	max. 250 ppm
Arsenic (As)	max. 50 ppm
Barium (Ba)	max. 100 ppm
Lead (Pb)	max. 100 ppm
Cadmium (Cd)	max. 50 ppm
Chromium (Cr)	max. 100 ppm
Mercury (Hg)	max. 25 ppm
Selenium (Se)	max. 100 ppm
Zinc (Zn)	max. 1000 ppm

6.6.3 Dyes and pigments are exempted from requirement 5.1.1 with regard to copper, although it may only be present at a maximum level of 5% by weight in green and blue shades.

6.6.4 Dyes and pigments that can be split into one of the carcinogenic aromatic amines listed in Reach Annex XVII must not be used.

6.6.5 Dispersion dyes must not contain levels of substances or compounds that have to be declared, classified with

R42 May cause sensitisation by inhalation	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
R43 May cause sensitisation by skin contact	H317 May cause an allergic skin reaction

or combinations of these hazards statements or risk phrases, if they are present in the ingredients at levels that have to be declared in accordance with regulations and safety data sheets (EU Regulation No. 1272/2008, GHS, or EU Directives 2001/58/EEC and 1907/2006/EEC). If the declaration obligation according to the EU Regulation, GHS or the EU Directives is absent, the substances or compounds with said hazard statements and risk phrases may not be present in the dispersion dye at levels exceeding 0.1% by weight.

6.6.6 Natural dyes and pigments may not be extracted from endangered plant and animal species. The solvents used for extraction must satisfy the chemical requirements in Section 5.

6.7 Dyeing

In the case of exhaust dyeing, dyes with a high fixing level must be prioritised, and the focus must be on achieving low liquor ratios. Exhaust dyeing means that only a limited amount of textile in kg may be dyed at a time.

6.7.1 Auxiliary chemicals for dyeing and decolourising must satisfy the requirements in Section 5.

6.7.2 The treatment of wastewater from the dyeing of textiles must satisfy the requirements in Section 7.2.

6.8 Printing

Printing can take place on goods sold by the metre or on individual products, e.g. a garment. The patterning method varies, and can take place by means of a printing paste being applied by screens or other printing tools, as well as dyes, films, foil, etc., being transferred to the fabric via a carrier material. The latter methods are known as transfer printing, and require a heat press and possibly adhesive.

6.8.1 For printing, only water-based printing pastes are approved.

6.8.2 In the case of transfer printing where the dye pattern has first been printed on paper, only water-based printing pastes may be used.

6.8.3 In the case of transfer printing where the pattern comprises a film or foil instead of dye, the requirements set out in Section 4.3 must be satisfied. This type of printing is known as heat transfer film printing or foil printing.
Class II

6.8.4 The weight of the transfer print is restricted, see Section 4.3.4.

6.8.5 An exemption to requirement 5.1.1 is permitted with regard to urea when printing with dyes. However, the printing pastes may contain a maximum of 30 g of urea/kg of paste.

6.8.6 An exemption to requirement 5.1.1 is permitted with regard to nitrogen compounds when printing with dyes. However, the printing pastes may contain a maximum of 30 g of nitrogen/kg of paste.

6.8.7 An exemption to requirement 5.1.1 is permitted with regard to ammonia in order to adjust the pH when preparing pigment paste.

6.8.8 Printing pastes with pigment dye that have not been used up during printing must in the first instance be re-used, and in the second instance be handled as solid waste. In the latter case, they must be dealt with in accordance with recommendations in safety data sheets, and must not find their way into wastewater.

6.8.9 Printing pastes that cannot be re-used and that have not been used up during printing, must be handled as solid waste. They must be dealt with in accordance with recommendations in safety data sheets, and must not find their way into wastewater.

6.8.10 The cleaning of printing equipment must be performed using cleaning agents that satisfy the requirements in Section 5. Cleaning agents labelled with Good Environmental Choice, the Swan mark or the EU Ecolabel are approved for use.

6.8.11 The treatment of wastewater from the printing of textiles in goods sold by the metre must satisfy the requirements in Section 7.2.

6.8.12 The treatment of wastewater from the printing of textiles that do not comprise goods sold by the metre, but are products such as garments, must satisfy the requirements in Section 7.2. This can take place in the production unit or in an external treatment plant.

The above also applies to wastewater from the cleaning of printing equipment, as well as when print screens are processed for re-use.

6.8.13 For screen printers, the treatment of wastewater from the printing of textiles that do not comprise goods sold by the metre, is exempted from the cleaning requirement in the production unit, but has to be taken care of by a municipal sewage treatment plant. Printing takes place on products such as garments. Requirement 6.8.14 must be satisfied.
Class II

6.8.14 For the screen printers in Section 6.8.13 that are exempted from the treatment of wastewater in the production unit, the chemicals e.g. photo emulsion that are used to create blocked areas in the print screen must satisfy the requirements in Section 5.

6.8.15 Cleaning agents and chemicals that are used to clean the screens, and restoring them for reuse must satisfy the requirements in Section 5. Cleaning agents and chemicals labelled with Good Environmental Choice, the Swan mark or the EU Ecolabel are approved for use.

6.9 Finishing of textile materials

Textile materials can occasionally be finished mechanically, although very often there is also a chemical treatment to achieve properties that cause the textile to feel soft or rigid, to be easy to look after and not to wrinkle, to repel water, etc. For example, fabric can be impregnated, coated or laminated. During chemical treatments, it is important to focus on methods that minimise chemical consumption and discharges into wastewater.

6.9.1 Optical brightening agents may not be used on cellulose.

6.9.2 Optical brightening agents may be present in or used on synthetic material made from recycled material, provided they satisfy the requirements in Section 5.
Class II

6.9.3 Flame retardants must not be added in any process stage. An exemption may be granted if flame retardant treatment is required under the legislation in the country where the product is sold. The flame retardants used in this case must satisfy the requirements in Section 5.
Class II

6.9.4 The total dry weight of one or more coatings of a synthetically produced polymer on fabric may not exceed 25 g/m^2 and must satisfy the requirements in Section 5.
Class II

6.9.5 No chemicals may be added in order to produce an anti-bacterial effect in the end product.

6.9.6 Manual treatment of the garment which entails wear of the textile material is not permitted if there are any health risks for the workers carrying out the treatment. Sandblasting is one type of wear that is not permitted. Wear may only entail a minor aesthetic effect, and must not impair the service life of the garment.

Justification for the requirements

[6.1.1] In many cases, mineral oils containing polyaromatic hydrocarbons are used. The majority of these, when broken down in the body, can form mutagenic or carcinogenic degradation products, which are weakly degradable in the environment and are bio-accumulated.

[6.2.1] Many types of warping adhesive consume oxygen when they find their way into the wastewater. For this reason, efforts must be made to use small quantities of adhesive or, where possible, no adhesive at all.

[6.2.2] Smaller amounts of polyvinyl alcohol and polyacrylate are needed to achieve an effect compared to starch-based adhesive.

[6.2.3] Adhesives made of modified starch, polyvinyl alcohol and polyacrylate can be recovered, although in practice this has to take place close to the weaving plant.

[6.2.4] The availability on the market of enzymes that are not derived from GMO is limited.

[6.4.1] Wool scouring with solvents saves water and energy. Pesticide residues are also effectively washed from the wool by the solvent.

[6.4.2] Ammonia saponifies fats and effectively dissolves fat and dirt, but at the same time constitutes a problem in the working environment that can be avoided with closed washing systems. The consumption of resources in a closed system is lower than in an open system.

[6.4.3] Recycling of wool fat reduces the load imposed by oxygen-consuming organic compounds in the wastewater.

[6.4.4, 6.4.5] Requirements for COD reduction in wastewater reduce the risk of oxygen deficiency in the watercourse that receives the wastewater.

[6.6.3] It is difficult at the present time for dye manufacturers to find good alternatives to copper to produce green and blue shades.

[6.7] Selecting dyes with a high fixing level reduces residual dye in the wastewater. A low liquor ratio means that a smaller amount of water is consumed per kg of textile, thereby reducing the total volume of the liquor that is released into the wastewater.

[6.8.6, 6.8.7] Nitrogen compounds, such as urea, contribute to eutrophication in watercourses. The exemption applies to aquatic environments that are recipients of wastewater, and where the growth of algae and higher plant species is restricted by the availability of nitrogen.

[6.8.8, 6.8.9] Printing pastes with pigment dyes can often be re-used, which is not always the case for printing pastes that contain other dye classes.

[6.8.9, 6.8.10] Printing pastes contain weakly degradable compounds that find their way into the wastewater and accompany the wastewater into the recipient. There they can accumulate and cause problems. The methods for recovery of pigment pastes are now well-established in major production units for goods sold by the metre.

[6.8.14] For smaller screen printers, having wastewater treatment on site is a major investment, and in order to support the initiative of using printing dyes that have less of an impact on the environment, they are now exempted from the requirement regarding treatment.

[6.9.1, 6.9.2] Optical brightening agents provide the textile with greater whiteness, although in cellulose these are not permanent and are washed out over time. However, the optical brightening agents are permanent in synthetic materials.

[6.9.4] The permitted applied dry weight of the coating paste is the same in terms of weight as for a laminated film or similar.

[6.9.6] Sandblasting and similar treatments entail a risk of inhalation of solid particles that can cause lung problems.

7 Resource consumption and treatment of wastewater

This section looks at resource consumption and general requirements for the treatment of wastewater, which are applicable to all processes that generate wastewater. Additional requirements for the treatment of wastewater for fibre production and wet processing can be found in Sections 4 and 6. In addition, requirements are stipulated for information regarding how resource consumption and waste can be minimised and how the handling of wastewater can be improved.

7.1 Consumption of water and energy

7.1.1 The average amount of water consumed per kg of finished textile per year in the case of wet processing must be specified.

7.1.2 The average amount of energy consumed per kg of finished textile per year in the case of wet processing must be specified, as well as which types of energy source are used by the production unit.

7.2 Wastewater

7.2.1 The average amount of wastewater generated per kg per year during the treatment of bast fibres or textiles must be specified.

7.2.2 Process stages that generate wastewater must be connected to treatment plants. The treatment plant must be on-site or off-site, and must comprise mechanical, chemical and biological treatment.

7.2.3 The COD content in the treated wastewater that has been treated in the production plant and is released directly into a recipient must on average be < 20 g/kg of textile per year. If the wastewater is treated in a treatment plant that receives wastewater from many sources, the COD must be reduced on average by at least 90% in the treatment plant.

7.2.4 The pH of the wastewater after treatment must be in the range 6-9, unless the recipient's natural pH deviates from this range.

7.2.5 The temperature of the wastewater after treatment may not exceed 40°C, unless the recipient naturally has a higher temperature.

7.2.6 In OECD countries, the phosphorus content of the treated wastewater must on average not exceed 0.5 g/kg of textile per year. If the wastewater treatment plant receives wastewater from numerous sources, any phosphorus discharges must be treated on average to at least 90%. An exemption from this requirement may be granted where the recipient is subject to a nitrogen restriction.

Nitrogen restriction applies when the Redfield ratio (N:P) in the recipient is ≤16.

7.2.7 The copper content of the treated wastewater must on average be ≤ 0.5 mg/l per year.

7.2.8 In cases where chemical substances or compounds in accordance with 5.1.4 are used in the process, the sludge from the treatment plant must be digested.

7.3 Improvement work from an environmental perspective

7.3.1 The licensee must enclose written information about how production units that generate wastewater are working to reduce water and energy consumption per kg of textile, minimise waste as well as discharges of wastewater.

Justification for the requirements

[7.2.4, 7.2.5] If there is a difference in the pH and the temperature between the wastewater and the water into which the wastewater is discharged, this can give rise to problems for the plants and animals that live there.

[7.2.6] Phosphorus can cause eutrophication if it is released into the environment.

[7.2.7] Kopper is highly toxic to aquatic organisms.

8 Reused textile products

Reused textiles that can be labelled with Good Environmental Choice are textile products that have been collected in after having been used by consumers or other users. The requirements in Sections 10.4 and 11.1-11.2 must be satisfied.

Reused textiles that have been re-designed through re-sewing or additional process stages can also be labelled with Good Environmental Choice. In the case of additional stages of wet processing, the requirements in Sections 5-7 must be satisfied.

8.1 After treatment

8.1.1 Washing and stain removal agents used by the licensee to clean second-hand textiles prior to sale, or textiles for re-design, must be ecolabelled with Good Environmental Choice, the Nordic Ecolabel or the EU Ecolabel.

8.1.2 Chemical products that are used for the finishing of reused textile, where the purpose is to achieve new properties, must satisfy the requirements in Section 5 and requirements 6.9.1-6.9.6 where the latter are relevant. Also the requirements in Section 7.2.

9 Good Environmental Choice based on GOTS

A certificate for Global Organic Textile Standard (GOTS) issued for a textile product labelled with 'organic' or 'organic – in conversion', can be used when applying for Good Environmental Choice Fibre and Finishing. In order to be approved for Good Environmental Choice Class I, the additional requirements in this section must be satisfied; otherwise Class II is achieved.

The additional requirements are produced following a comparison with GOTS version 3.0. If another version of GOTS is used in the application, Good Environmental Choice reserves the right to adjust the additional requirements so that they satisfy the requirements stipulated for Good Environmental Choice Textiles.

9.1 Application with GOTS certificate

The licensee must enclose the GOTS certificate with the application, and continually submit new certificates as the old ones expire.

9.2 Additional requirements for Good Environmental Choice Fibre and Finishing, Class I

A licensee who uses the GOTS certificate when applying must provide verification that the requirements in Sections 9.2.1 - 9.2.9 are satisfied.

9.2.1 Requirements from Section 4 regarding other material, not fibres.
Where relevant, the requirements in the following sections must be satisfied.

- 4.1 Accessories for manufacturing
- 4.2 Padding material from natural origin
- 4.3 Membrane, film, foil, transfer printing, foam, etc.
- 4.4 Backing material

9.2.2 Requirements from Section 5.1.2 regarding hazard statements/risk phrases.
No textile chemicals or dyes may contain elements or chemical compounds with the following hazards statements/risk phrases:

R50 Very toxic to aquatic organisms	H400 Very toxic to aquatic life
R54 Toxic to flora	- [1]
R55 Toxic to fauna	- [1]
R56 Toxic to soil organisms	- [1]
R58 May cause long-term adverse effects in the environment	- [1]
R59 Dangerous for the ozone layer	EUH059 Hazardous to the ozone layer H420 Harms public health and the environment by destroying ozone in the upper atmosphere

1 No H phrase exists.

9.2.3 Requirements from Section 5.1.3 regarding toxicity and degradability in aquatic environments.

Chemical substances and compounds with LC50 or EC50 < 1 mg/l are always prohibited.

LC50 or EC50 1-100 mg/l and degradable to at least 60-70% in 28 days according to OECD 301 or equivalent testing method, see Appendix 2.

9.2.4 Requirements from Section 5.1.4 regarding hazard statements/risk phrases as well as eliminability in aquatic environments

Chemical substances or compounds classified with one or more the hazard statements/risk phrases in the following table are only permitted if they are eliminable to at least 80% in 28 days according to OECD 303 A or ISO 11733.

R53 May cause long-term adverse effects in the aquatic environment	H413 May cause long-lasting harmful effects to aquatic life
R52/R53 Harmful to the aquatic environment, can cause long-term effects	H412 Harmful to aquatic life with long-lasting effects

9.2.5 Requirements from Section 6 regarding wet processing.
Where relevant, the requirements in the following sections must be satisfied.

6.5.1 Mercerisation
6.6.5 Dispersion dyes
6.8 Printing
6.9.1 Optical brightening agents

9.2.6 The licensee must provide verification that the requirements in Section 7.2 regarding the treatment of wastewater are satisfied.

9.2.7 The licensee must provide verification that the GOTS-approved wool satisfies requirement 2.5.2 regarding mulesing.

9.2.8 The licensee must satisfy the requirements stipulated for the end product in Section 10.

9.2.9 The licensee must satisfy the requirements in Section 11, relating for example to the working environment and social conditions in the production units, as well as the company's environmental and transport policies.

10 End product's requirements and packaging

The requirements stipulated for the end product in Sections 10.1 - 10.3 do not apply to Second hand and Re-design.

10.1 Functional requirements

10.1.1 It is important to strive to achieve sustainable textile products with a long service life. The requirement levels promised by the licensee must correspond to the accepted standard for the product group in question. It is the responsibility of the licensee to satisfy the promised requirement levels. This applies for example to the following properties:

Dimensional stability (shrinkage).
Colour fastness in relation to light, perspiration, rubbing (dry/wet), washing (colour change/staining) as well as colour fastness to water.

10.2 Washing

10.2.1 All products, with the exception of reused textiles labelled with Good Environmental Choice, must withstand washing in water. This must be clear from the washing instructions, which in turn must be resistant to washing. The requirement on the care label does not apply to industrial laundered textiles.

10.3 pH of end product

10.3.1 Textile products that are worn close to the skin must satisfy the requirement for a pH value of between 4.0-7.5.

10.4 Packaging material and labels

10.4.1 Packaging is defined here as individual or multiple package to the customer. Bags or similar that are used at the time of sale to pack different types of product from the shop's textile range are not covered by the requirements.

The type of material used in the textile product's packaging and in labels to the customer must be specified. It is important to strive for recycled materials, and all materials must satisfy the requirement in Section 5.1.1.

Paper must not be chlorine bleached in any stage and must be produced by recycled material or certified by FSC.

Plastic packaging made from polyethylene (PE), polypropylene (PP), polyethylene terephthalate (PET) or an equivalent plastic are permitted.

Justification for the requirements

[10.3.1] An incorrect pH in a textile that is worn close to the skin can cause skin irritation in sensitive individuals.

11 Corporate requirements

11.1 Ethical and social requirements

11.1.1 The licensee must describe how the company and the production units linked to the application, satisfy and check the requirement regarding ethical production (Code of conduct). ILO's eight core conventions must be satisfied and the description must also include any additional work-related questions addressed (see points below).

ILO (International Labour Organization)

- The right for form trade unions and the right to collective bargaining (ILO conventions 87 and 98)
- Where the rights to form trade unions and to collective bargaining are restricted by law, the employer must not prevent its employees from creating other collective structures to look after their interests. It is not acceptable for trade unions managed by the company to represent the workers in the company.
- Forced labour and penal servitude (ILO conventions 29 and 105)
- Discrimination (ILO conventions 100 and 111)
- Child labour (ILO conventions 138 and 182)
- Working hours
- Compensation
- It must be possible to survive on the wages paid, which not infrequently means that the statutory national minimum wage is inadequate.
- A reasonable minimum wage must be sufficient for food, accommodation, clothes, health care and schooling, and also to allow a small amount of savings to be put aside. What constitutes a reasonable minimum wage is determined through negotiation between the employer and the workers' freely elected representatives, for example trade unions.
- Safety at work and health

11.2 Environmental and transport policy

11.2.1 The licensee must have in place an environmental policy established by the company management, according to which the company undertakes to make continuous environmental improvements. Alternatively the company must be ISO 14000 certified or registered for EMAS.

ISO 14000 and EMAS are environmental management systems.

11.2.2 The licensee must have in place a transport policy established by the company management, and by documentation demonstrating how the company is working to reduce the environmental impact of their freight and business travel.

Appendix 1. Definitions and abbreviations

Organisations

BCI	Better Cotton Initiative
CITES	The Convention on International Trade in Endangered Species of Wild Fauna and Flora
CmiA	Cotton made in Africa
EEC	European Economic Community
ECHA	European Chemical Agency
EPA	U.S. Environmental Protection Agency
ETAD	Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers
EU	European Union
FSC	Forest Stewardship Council
GOTS	Global Organic Textile Standard
IFOAM	International Federation of Organic Agriculture Movements
ILO	International Labour Organization
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
OECD	Organisation of Economic Cooperation and Development
OTA	Organic Trade Association
RTRS	Round Table on Responsible Soy
SA	Soil Association

Standards, test methods, ordinances, etc.

GHS	The Globally Harmonized System of Classification and Labelling of Chemicals, an EU regulation regarding the classification, labelling and packaging of chemical substances and preparations.
CLP	Classification, labelling and packaging.
BOD	Biological Oxygen Demand
CAS	Chemical Abstracts Service allocates CAS numbers to chemical substances.
COD	Chemical Oxygen Demand
'EC50	Effect concentration (50%)
EMAS	Environmental Management System
H	Hazard specification
IC50	Inhibition concentration (50% inhibition)
ISO 14 000	Environmental Management System
LC50	Lethal concentration (50% mortality)
ppm	1 ppm is equivalent to 0.0001%. E.g. 1 ppm = 1 mg/kg
REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. Chemicals legislation within the EU.
Redfield ratio	The ratio between nitrogen and phosphorus: N:P. Used in conjunction with nitrogen restriction in recipient.
R-Phrase	Risk phrase
SVHC	Substances of very high concern
TOC	Total Organic Carbon

Analysis equipment

CE	Capillary Electrophoresis
GC	Gas Chromatography
CLC	Capillary Liquid Chromatography
HPLC	High Pressure Liquid Chromatography
MS	Mass spectrometry
LC	Liquid Chromatography
OES	Optical Emission Spectrometry
UV/VIS	Ultraviolet–Visible Spectroscopy

Chemical designations

APEO	Alkyl phenol ethoxylate
LAS	n-alkyl benzene sulphonate
PE	Polyethylene
PET	Polyethylene terephthalate
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulphonate
PLA	Poly lactic acid
PP	Polypropylene
PVC	Polyvinyl chloride
VOC	Volatile Organic Compounds

Miscellaneous

Finishing	"Finishing" in the context of the Good Environmental Choice criteria, means that the textile material has been further refined, e.g. through bleaching, dyeing, printing, softening. More generally is the common expression for the Swedish word "Beredning": wet processing, where finishing is one part.
GMO	Genetically modified organisms
Man-made fibre	Man-made fibres are produced in an artificial way, e.g. regenerated fibres and synthetic fibres.
N.m.m.	Non-mulesed merino. Certification conducted by the Merino Company in Australia
Process stages	Process stages are all the manufacturing operations involved in producing textile products, such as extraction of bast fibres, spinning, knitting, weaving, bleaching, dyeing, washing, finishing and making-up.
Product group	A group of textile products consisting of the same type of textile. All individual products must have the same fibre content. The accessories can vary between the products, but must be approved for the product group.
Product	An individual textile product.
Product variant	Variants of the product may include the same product in different colours.
Regenerated fibre	Regenerated fibres refer e.g. to xanthogenate-based viscose and N-methyl morpholine N-oxide-based viscose.
Recipe	A dye or chemical liquor, a paste, etc., are mixed according to a recipe, which includes all the used textile chemicals and dyes along with their commercial names and included quantities.
Textile chemical	This criteria document uses the term 'textile chemicals' for all the chemicals that are used to produce the textile product.
Synthetic fibre	Synthetic fibres are usually produced using petroleum products as the raw material, such as polyester and polyamide.

Appendix 2. Supplementary information about analysis and testing methods

The methods are used to verify the requirements in conjunction with random sample checks for Good Environmental Choice Textiles, and other corresponding methods may also be appropriate.

This appendix should be viewed as an aid in gaining an overview of the stipulated requirements as well as analysis and testing methods. Brief information is entered in the table, which means that the text and specified requirements under the relevant section in the document apply in the first instance.

For further information about specified requirements, see the indicated sections.

Chemical substances and compounds in textiles and other materials

Parameters	Section in the criteria / Relates to / Requirement	Test methods
Antimony (Sb)	3.3.6 / PLA fibre / Max. 30 mg/kg 3.6.6 / Polyester fibre / Max. 260 mg/kg	ISO 17072 ICP-OES, ICP/AES, ICP/MS, AAS or SFA.
Arsenic (As)	4.1.4 / Other material / < 0.2 mg/kg	
Lead (Pb)	4.1.4 / Other material / < 0.2 mg/kg	
Phthalates	4.1.3 / Other material / May not be present	GC-MS
Halogenated organic compounds such as halogenated monomers	3.6.8 / Synthetic fibres / May not be present 4.1.3 / Other material / May not be present	Solvent-based extraction, GC-ECD.
Cadmium (Cd)	4.1.4 / Other material / < 0.1 mg/kg	ISO 17072 ICP-OES, ICP/AES, ICP/MS, AAS or SFA.
Mercury (Hg)	4.1.4 / Other material / < 0.02 mg/kg	
Nickel (Ni)	4.1.4 / Other material / < 1 mg/kg	
Perfluorinated organic compounds	4.1.3 / Other material / May not be present	GC-MS, HPLC-MS
Polyvinyl chloride (PVC)	4.1.3 / Other material / May not be present	ISO 6401
Tin (Sn)	3.3.6 / PLA fibre / Max. 4 mg/kg	ISO 17072 ICP-OES, ICP/AES, ICP/MS, AAS or SFA.

Prohibited chemical substances and compounds in textile chemicals and dyes

Refers to Section 5.1.1. These substances may not occur nor be split, provided no exemptions have been defined.

Parameters	Test methods
α-methyl-ester sulphonate (α-MES)	Derivatisation as well as GC-MS, NMR
Ammonia or ammonium compounds	SS-EN 11732.
APEOs, Alkyl phenol ethoxylates	LC-MS. HPLC-MS Consideration is given to up to 20 ethoxylation degrees.
Aromatic solvents such as benzene, toluene and xylene	Extraction hexane:acetone (50:50), analysis GC-MS or HPLC according to ISO 11338 or ISO 18287.
DHTDMAC, DSDMAC, DTDMAC	EPA Method 3550C
DPTA, Diethylene triamine penta acetic acid	AATCC Test Method 149
EDTA, Ethylene diamine tetra acetic acid	AATCC Test Method 168-2007
Phthalates	ISO 18856 GC-MS
Halogenated solvents	EPA Method 25
Halogenated phenols and their salts	EPA Method 8040
Halogenated organic compounds	EPA Method 8021B, EPA 8260B
Hypochlorite or other chlorine-based bleaching agents	Quick test based on DPD reagent, e.g. HACH test
Short-chain aldehydes, with up to 6 carbon atoms, such as acetaldehyde, formaldehyde and glyoxal	EPA Method 8315A HPLC, Spectrophotometric method UV/VIS
LAS, Linear alkyl benzene sulphonates	HPLC-UV, NMR
Metals, including arsenic but excluding iron	ICP-OES, ICP/AES, ICP/MS, AAS or SFA.
NTA, Nitrilo-tri-acetic acid	AATCC Test Method 149 AATCC Test Method 168-2007
Organic tin compounds	ISO 17353
PAH, Polyaromatic hydrocarbons	EPA Method 8100
Perfluorinated organic compounds such as PFOS, PFOA	EPA Method 357 (drinking water)
PVC, Polyvinyl chloride	ISO 6401

Chemical substances and compounds in colouring agents and pigments

Parameters	Section in the criteria / Relates to / Requirement	Test methods
Antimony (Sb)	6.6.1 / Colouring agents / Max. 50 ppm[1] 6.6.2 / Pigments / Max. 250 ppm	ICP-OES, ICP/AES, ICP/MS, AAS or SFA.
Arsenic (As)	6.6.1 / Colouring agents / Max. 50 ppm 6.6.2 / Pigments / Max. 50 ppm	
Barium (Ba)	6.6.1 / Colouring agents / Max. 100 ppm 6.6.2 / Pigments / Max. 100 ppm	
Lead (Pb)	6.6.1 / Colouring agents / Max. 100 ppm 6.6.2 / Pigments / Max. 100 ppm	
Iron (Fe)	6.6.1 / Colouring agents / Max. 2500 ppm	
Cadmium (Cd)	6.6.1 / Colouring agents / Max. 20 ppm 6.6.2 / Pigments / Max. 50 ppm	
Cobalt (Co)	6.6.1 / Colouring agents / Max. 500 ppm	
Copper (Cu)	6.6.1 / Colouring agents / Max. 250 ppm 6.6.3 / Colouring agents, pigments / Exemption: green and blue shades, max. 5% by weight	
Chromium (Cr)	6.6.1 / Colouring agents / Max. 100 ppm 6.6.2 / Pigments / Max. 100 ppm	
Mercury (Hg)	6.6.1 / Colouring agents / Max. 4 ppm 6.6.2 / Pigments / Max. 25 ppm	
Manganese (Mn)	6.6.1 / Colouring agents / Max. 1000 ppm	
Nickel (Ni)	6.6.1 / Colouring agents / Max. 200 ppm	
Selenium (Se)	6.6.1 / Colouring agents / Max. 20 ppm 6.6.2 / Pigments / Max. 100 ppm	
Silver (Ag)	6.6.1 / Colouring agents / Max. 100 ppm	
Tin (Sn)	6.6.1 / Colouring agents / Max. 250 ppm	
Zinc (Zn)	6.6.1 / Colouring agents / Max. 1500 ppm 6.6.2 / Pigments / Max. 1000 ppm	
Carcinogenic aromatic amines	6.6.4 / Colouring agents, pigments / May not be present	ISO 14362
Allergenic dispersion dyes	6.6.5 / Colouring agents, pigments / May not be present	DIN 54231

[1] 1 ppm is equivalent to 0.0001%, e.g. 1 ppm = 1 mg/kg

Toxicity and degradability/eliminability in aquatic environments

Parameters	Section in the criteria / Requirement	Test methods
LC_{50} or EC_{50} Degradability	5.1.3 / > 100 mg/l No requirement regarding degradability	
	5.1.3 / 1-100 mg/l Alternative 1. Degradability to at least 60% Alternative 2. Degradability to at least 70%	Alternative 1. Degradability to at least 60% in 28 days according to OECD 301 B, C, D and F, ISO 9408, ISO 9439, ISO 10707 or ISO 10708. Alternative 2. Degradability to at least 70% in 28 days according to OECD 301 A and E or ISO 7827.
Eliminability	5.1.4 / Eliminability to at least 80%	Eliminability to at least 80% in 28 days according to OECD 303 A or ISO 11733.

Wastewater

Parameters	Section in the criteria / Relates to / Requirement	Test methods
COD[2]	3.2.5 / Pulp production / Max. 40 kg/tonne of pulp per year 6.4.4 / Washing of wool / Max. 45 g/kg of unwashed wool 7.2.3 / Wastewater to recipient / < 20 mg/kg of textile per year	ISO 6060
COD/TOC[3]	3.1.2 / Retting hemp / Min. 75% 3.1.2 / Retting flax, other stem fibres / Min. 95% 3.3.8 / PLA / Min. 85% 3.4.2 / Technical protein fibres / Min. 85% 6.4.5 / Silk / Min. 85%	COD according to ISO 6060 TOC according to ISO 4285
Total phosphorus (P)	3.2.6 / Pulp production / Max. 50 g/tonne of pulp per year 7.2.6 / Wastewater to recipient / < 0.5 g/kg of textile per year	ISO 15681-1
Aluminium (Al)	3.3.7 / PLA fibre / Max. 0.3 g/kg of fibre per year	ISO 8288 ICP-MS or ICP-OES and AAS
Antimony (Sb)		
Tin (Sn)		
Zinc (Zn)	3.3.7 / PLA fibre / Max. 0.3 g/kg of fibre per year 3.2.12 / Regenerated fibre / Max. 0.2 g/kg of fibre per year	ISO 8288 ICP-MS or ICP-OES and AAS
Copper (Cu)	7.2.7 / Wastewater to recipient / ≤ 5 mg/l per year	ISO 8288
Wool fat	6.4.3 / Washing of wool / Max. 40 g/kg of unwashed wool	Gravimetric method
pH	7.2.4 / Wastewater / pH 6-9	
Temperature	7.2.5 / Wastewater / Max. 40°C	

[2] COD = Chemical Oxygen Demand
[3] TOC = Total Organic Carbon

Emissions into the air

Parameters	Section in the criteria / Relates to / Requirement	Test methods
Aromatic di-isocyanates	3.5.4 / Polyurethane fibres / 4.3.6 / Material layer or adhesive / Max. 5 mg/kg of material per year	ISO/TR 17737
Volatile organic compounds (VOC)	3.6.5 / Polyester Max. 1 g/kg of produced resin per year	EN 13526 or EPA Method 25
Nitrous oxide (N_2O)	3.6.4 / Polyamide fibre / PA6 max. 10 g/kg per year PA 6.6 max. 50 g/kg per year	ISO/FDIS 21258.
Nitrogen oxides (NO_x)	3.2.4 / Pulp production / Max. 2.0 g nitrogen oxides/kg of pulp per year 3.6.7 / Polypropylene / Max. 12 g/kg of fibre per year	Alternative 1: Automatic with ISO 10839 or EPA Method 7 Alternative 2: Wet chemical with ISO 11564 or EPA Method 7
Sulphur dioxide (SO_2)	3.2.3 / Pulp production / Max. 0.7 g sulphur dioxide/kg of pulp per year 3.2.10 / Production of regenerated fibres max. 25 g/kg of fibre per year 3.6.7 / Polypropylene / Max. 11 g/kg of fibre per year	Alternative 1: Automatic with ISO 7935 or EPA Method 6 Alternative 2: Wet chemical with ISO 7934, ISO 11632 or EPA Method 6

Requirements regarding products

Parameters	Section in the criteria / Relates to / Requirement	Test methods
Dimensional stability (shrinkage)	10.1.1 / Satisfies promised requirement level	ISO 6330
Colour fastness to light		ISO 105-B02
Colour fastness to perspiration		ISO 105-E04
Colour fastness to rubbing		ISO 105-X12
Colour fastness to washing		ISO 105-C03
Colour fastness to water		ISO 105-E01
pH	10.3.1 / pH 4.0-7.5	ISO 3071

Swedish Society for Nature Conservation

Naturskyddsföreningen. Box 4625, 11691 Stockholm.
Phone + 46 8 702 65 00. info@naturskyddsforeningen.se

The Swedish Society for Nature Conservation is an environmental organisation with power to bring about change. We spread knowledge, map environmental threats, create solutions, and influence politicians and public authorities, at both national and international levels. Moreover, we are behind one of the world's most challenging ecolabellings,

"Bra Miljöval"(Good Environmental Choice). Climate, the oceans, forests, environmental toxins and agriculture are our main areas of involvement.

www.naturskyddsforeningen.se

Bra Miljöval