

About Nordic Ecolabelled

Textiles, hides/skins and leather

**version 4.0, consultation paper,
27 March 2012**

Background for ecolabelling



Nordic Ecolabelling

Nordic Ecolabelled textiles, hides/skins and leather - Background for ecolabelling - consultation paper

039/Version 4.0, 27 March 2012

Table of contents

1	Summary	4
2	Introduction	5
3	Facts about the criteria.....	5
3.1	Products that can be ecolabelled	5
3.2	Motives for the Nordic Ecolabelling of textiles, hides/skins and leather	6
3.3	The criteria document's version and period of validity	9
3.4	The Nordic market	9
3.5	Other labelling of textiles, hides/skins and leather	10
3.5.1	Other type 1 ecolabels	10
3.5.2	Organic labelling schemes	11
3.5.3	Other labelling schemes	12
3.5.4	Various initiatives	14
4	About the revision	15
4.1	The aim of the revision	15
4.2	About this revision.....	15
5	Motives for the requirements	15
5.1	The textiles market and textile fibres	15
5.1.1	Vegetable fibres	18
5.1.2	Animal fibres.....	20
5.1.3	Man-made fibres	21
5.1.4	Hides/skins and leather	22
5.2	The impact of textiles, hides/skins and leather on the environment and health.....	23
5.2.1	LCA of textiles	23
5.2.2	The impact of the production of fibres on the environment and health	25
5.2.3	The impact of the finishing of fibres and the production of textiles on the environment and health	29
5.2.4	The impact of the production of hides/skins and leather on the environment and health	31
5.3	Ethical problems	32
6	Background for the requirements	33
6.1	The relationship to the EU Ecolabel.....	33
6.1.1	The relationship to GOTS	33
6.2	Product group delimitation	34
6.3	Information about the product	37
6.4	Production of fibres	39
6.4.1	Cotton and other natural cellulose seed fibres	39
6.4.2	Linen and other bast fibres (hemp, jute and ramie)	43
6.4.3	Unprocessed wool and other keratin fibres	44
6.4.4	Synthetic fibres.....	46
6.4.5	Regenerated cellulose fibres	50
6.5	Production of hides/skins and leather	51

6.6	Filling materials	53
6.7	Metal parts – heavy metals	53
6.8	Coatings, laminates and membranes	54
6.9	Chemicals	56
6.9.1	Textile chemicals	57
6.9.2	Auxiliary chemicals for fibres and yarn	64
6.9.3	Hide and leather chemicals	66
6.9.4	Finishing chemicals	69
6.10	Emissions	71
6.10.1	Textiles	71
6.10.2	Hides/skins and leather	72
6.11	Energy and water consumption	73
6.11.1	Textiles	73
6.11.2	Hides/skins and leather	74
6.12	Quality and functionality requirements	75
6.12.1	Textiles	75
6.12.2	Hides/skins and leather	78
6.13	Labelling of the product	79
6.14	Ethical requirements	79
7	Requirements for environmental and quality assurance ..	83
8	Future criteria	84

1 Summary

The environmental impact from the production of textiles, hides/skins and leather is linked to the production of the raw material itself, i.e. the fibre or hide, and to the various processes involved, such as dyeing, spinning, tanning and finishing. In recent years, the textile industry has received more attention relating to environmental impact and ethical conditions, and several reports show that the environmental and ethical problems in textile production can be great. By labelling textiles, hides/skins and leather with the Swan, Nordic Ecolabelling wishes to show consumers that it is possible to produce products in a more environmentally friendly and health conscious way, and thereby guide consumers towards choices that are better for the environment.

Nordic Ecolabelling's criteria for textiles were first adopted in 1994, and in the revision to version 3 (adopted March 2004) it was also decided that hides/skins and leathers should be incorporated into the product group. In addition, it was decided that the Swan's requirements should be partially harmonised with the EU Ecolabel's criteria for textiles. This attitude is maintained in the consultation paper for textiles, hides/skins and leather version 4, and several of the requirements can therefore be documented with a valid EU Ecolabel certificate.

Throughout the revision, focus has been placed on preparing a background document that describes the environmental impact of the textile and clothing industry. This provides the basis for the requirements that are set. There has been a dialogue with licencees, the authorities, NGOs and other interested parties, and experts within different areas, throughout the revision work.

Several changes have been made to the requirements in the consultation paper for version 4. One of the most significant changes is that it is suggested that we move away from requiring that natural fibres, such as cotton, linen and hemp, shall be organically certified. For cotton, it is suggested that there should still be a percentage of the cotton that is organic. Other suggested significant changes include:

- Clarification and change in the product group regarding which products can be labelled. It is suggested, among other things, that products treated with flame retardants cannot be labelled.
- Requirements for traceability and the legal extraction of raw materials for regenerated fibres.
- Absolute requirements for water consumption during the tanning of hides/skins.
- Requirements for the content of lead, cadmium and nickel in metals.
- Requirements for dyes are extended with the prohibition of substances with environmental hazard classification.
- Introduction of animal ethics requirements, with a prohibition against mulesing and the use of down and feathers from live birds.

Nordic Ecolabelling would like to receive comments on the suggested requirements, and appreciate constructive input for improvements and changes to the background document.

2 Introduction

The Swan's version 4 of the criteria for Textiles, hides/skins and leather covers the ecolabelling of products that include clothing, accessories, home textiles, fibre, yarn and fabric, as well as hides/skins and leather. In the previous version of the Swan's criteria for textiles it was decided that the Swan should harmonise most requirements with the EU Ecolabel's criteria for textiles. In addition, the Swan should set some extra requirements, including regarding the organic production of vegetable fibres, as well as requirements regarding working conditions.

The harmonisation with the EU Ecolabel's requirements is also maintained in version 4 of the Swan criteria for textiles, hides/skins and leather, but the Swan still sets additional requirements for the farming of cotton, as well as ethical requirements linked to animal welfare and working conditions at the production sites.

The Swan's additional requirements have been evaluated during the revision, and opportunities to make the application process easier have been evaluated, for example by harmonising the requirements with other labelling schemes such as GOTS. During the revision work on the Swan's criteria version 4, it was decided that the textile criteria for the EU Ecolabel that were adopted in 2009 are going to be revised. The revision of the EU Ecolabel will start in October 2011.

This document describes the background for the requirements that have been set in the consultation proposal for version 4 of the criteria.

3 Facts about the criteria

3.1 Products that can be ecolabelled

The criteria cover products made of textile fibres, hides/skins and leather, or a combination of these. Textiles, hides/skins and leather refers to

- Ready-to-wear clothing and accessories, such as trousers, shirts, jackets, underwear, handkerchiefs, scarves, bags and purses.
- Furnishing fabrics, i.e. textiles produced for use and for interior decoration in the home or in cars/boats, such as hand towels, bedding, curtains, tablecloths, rugs, cushions, duvets and seat covers for cars.

- Fibres, yarn and fabric, including durable non-woven, which shall be used in textiles for clothing and accessories or in furnishing fabrics mentioned above. Durable non-woven refers to products that can be reused and washed.
- Hide/skin and leather products such as jackets or trousers and hides/skins and leather as raw materials for clothing or home furnishings or for cars/boats from the following species of animal: sheep, goat, ox, horse, pig, elk, deer and reindeer.

The following products and materials cannot be ecolabelled in accordance with the textile criteria or be included in a Nordic Ecolabelled textile product:

- Mineral fibre, glass fibre, metal fibre, carbon fibre and other inorganic fibres
- Products or materials that are treated with flame retardants. This also applies to flame retardants that are integrated in the product or material.
- Wall coverings, such as textile wallpapers.
- Advertising materials, banners, roll-ups.
- Disposable products. Disposable products refer to products that cannot be washed/dry-cleaned or reused.

Products that can be ecolabelled in accordance with other Nordic Ecolabelling criteria are not covered by the textile criteria. Examples of this are:

- Disposable products made from non-woven material that cannot be washed or reused, for example kitchen paper and cleaning cloths (criteria for soft paper)
- Disposable products such as cotton pads for personal care (criteria for hygiene products)
- Floor coverings, such as wall-to-wall carpets (criteria for flooring)
- Cushions that form a part of a piece of furniture, e.g. a sofa cushion (criteria for furniture and furnishings)
- Microfibre cloths (criteria for microfibre cloths)
- Toys/soft toys (criteria for toys)
- Shoes (included in the EU Ecolabel criteria for shoes)

3.2 Motives for the Nordic Ecolabelling of textiles, hides/skins and leather

Nordic Ecolabelling bases its requirements on an analysis of RPS. RPS stands for relevance, potential and steerability. Below, relevant environmental problems are described, as well as potential improvements and the possibility to set requirements that form the basis for Nordic Ecolabelling's criteria for textiles, hides/skins and leather.

In recent years, the textile industry has received more attention linked to the environmental impact and ethical conditions relating to production. This is partially related to the fact that much textile and clothing production has been moved to low-cost countries. Developing countries are now responsible for half of the world's textile exports and $\frac{3}{4}$ of the world's clothing exports. According to the English report

“Well dressed?” from 2006,¹ countries such as China, Pakistan, Bangladesh, India, Mexico, Romania, Cambodia and Turkey increased the number of employees in the textile industry in recent years. In addition, cheaper textiles and a focus on fashion have contributed to an increased demand for textile fibres. Consumerism, with its “use and throw away” mentality has resulted in increased quantities of waste, and textiles have a shorter lifetime. With increased demand and production, as well as shorter lifetimes, it becomes even more important to maintain control of how textiles and clothes are produced.

Several environmental problems are related to the production of textile fibres. Relevant environmental parameters are energy consumption, water consumption, the use of chemicals, effluent and land use. The production of textile fibres and clothing involves many stages, such as farming and the extraction of raw materials, spinning, bleaching, dyeing, washing, impregnating and sewing. Many chemicals are used in order to give textiles the desired properties and appearance.

Several reports show that environmental and ethical problems relating to the production of textiles are great. The “Well dressed?” report highlights the use of energy and toxic chemicals as important environmental factors. In December 2008, a Norwegian report was published by Forum for utvikling og miljø: “Skitne klær – En vurdering av miljø og arbeidsforhold ved produksjon og bruk, og sammenligning av leverandører”². The report states that the brands and business chains have poor control over the long production chain, and that it is probable that poor working conditions, child labour and the excessive use of environmental pollutants are still widespread within the production of textiles.

SwedWatch and Naturskyddsföreningen in Sweden have written the report “Den blinda klädimporten – Miljöeffekter från produktionen av kläder som importerer til Sverige.”³ This report also points out a lack of control and knowledge about the conditions with sub-suppliers, and that the demand for clothing that is produced in a more environmentally friendly way is limited. The reason for this is thought to be a lack of knowledge among consumers. Another report, “The sustainability of cotton”⁴, describes the environmental problems linked to the farming and harvesting of cotton. It is the use of pesticides and fertiliser in particular that results in both environmental and health problems.

Greenpeace recently stated that nonylphenol ethoxylates (NPEs) are found in clothing and shoes in the report “Dirty laundry 2: Hung out to dry”⁵. NPEs are used to wash excess dyes from clothing. These substances break down to nonylphenol, which is a substance that has endocrine disrupting properties. Nonylphenol ethoxylates are also

¹ “Well dressed? The present and future sustainability of clothing and textiles in the United Kingdom”, Allwood et al., 2006, University of Cambridge, Institute for Manufacturing.

² “Skitne klær – En vurdering av miljø og arbeidsforhold ved produksjon og bruk, og sammenligning av leverandører”, Desember 2008, Forum for Utvikling og miljø.

³ “Den blinda klädimporten – Miljöeffekter från produktionen av kläder som importerer til Sverige”, A report by Swedwatch and Naturskyddsföreningen, 2008

⁴ “The sustainability of cotton – consequences for man and environment”, Kooistra K., Termorshuizen A., Pyburn R., Wageningen University & Research Centre, report number 223, April 2006.

⁵ “Dirty laundry 2: Hung out to dry”, a report by Greenpeace, August 2011

highlighted as problematic substances in textiles from Asia in the Swedish report from Naturskyddsföreningen in 2008, “T-tröjor med ett smutsigt förflutet”.⁶ A test of bedding in Öko-Test⁷ shows that other problematic chemicals are found, including heavy metals such as chromium, halogenated organic compounds and optical white.

All these reports clearly show that there are relevant environmental problems for which Nordic Ecolabelling can set requirements. It is also clear, for example, that not all textiles contain problematic substances, so it is possible to set requirements, i.e. there is steerability. Textile producers and wet treatment plants do exist that continually work to avoid and limit the use of harmful chemicals, and reduce the manufacturer’s environmental impact through a focus on emissions and water and energy consumption.

In recent years, there has also been much focus on “new” environmental pollutants, such as fluorinated compounds, which are used in impregnation and coatings for outdoor clothing. These substances are persistent, harmful to health, and can damage fertility. There is great concern around the increased use of fluorinated substances, and studies show that they are accumulated in nature and transported over long distances to the Arctic⁸. In addition, new technology has entered the market, including the use of nano materials such as nano silver. Products in which nano technology is used are often placed on the market without a good evaluation of their health and environmental effects.

The purification of effluent varies greatly, particularly in Asia. Poor purification can result in chemicals that are harmful to health and the environment from the effluent being released into nature. There can also be problems with a high level of organic material in the effluent, which can result in a lack of oxygen and poor living conditions for organisms in the aquatic environment. Here, it is clear that there is potential to set Nordic Ecolabelling requirements that can result in environmental improvements.

Hides/skins and leather are also included in the product group. The environmental impact from this industry is linked in particular to energy consumption, the use of chemicals such as heavy metals, and emissions of substances that are harmful to health and the environment, as well as COD in the effluent. Chromium is a substance that is usually used in the tanning of hides/skins. Chromium is both harmful to the environment and allergenic. There are several forms of chromium, and it is hexavalent chromium (CrVI) that is regarded as most problematic. A report from Miljøstyrelsen, “Kortlægning og sundhedsmæssig vurdering (kun allergi) af krom i lædersko” from 2011⁹ shows that 8 of 18 surveyed leather shoes contained chromium (VI) in quantities that can be harmful to those who are allergic. The dyeing of hides/skins and

⁶ “T-tröjor med ett smutsigt förflutet”. A report from Naturskyddsföreningen 2008

⁷ Aus der Traum, Test of bedding in Öko-Test no. 11/2008

⁸ “Organophosphorous flame retardants in Arctic biota”, State programme for the monitoring of pollution, report no. 1092/2011

⁹ Miljøstyrelsen 2011, “Kortlægning og sundhedsmæssig vurdering (kun allergi) af krom i lædersko”, nr. 112 2011

leather can also be problematic. Both the dyes themselves and other chemicals such as detergents and complexing agents can be harmful to the environment.¹⁰

Nordic Ecolabelling believes that the Swan has good opportunities to influence the textile industry and result in more environmentally friendly production methods. Increased focus on the environment from both consumers and producers results in increased potential to achieve a breakthrough in the market. Relevant environmental parameters for which requirements can be set include the use of pesticides and organic production, the use of chemicals, purification of effluent and the quality and durability of the textile. By setting strict requirements for the use of chemicals, this will simultaneously improve the health of workers. By placing focus on the fact that licencees shall have a conscious awareness of the working environment and ethical production methods, the Swan can steer the industry towards improved production.

3.3 The criteria document's version and period of validity

Nordic Ecolabelling first adopted criteria for the ecolabelling of textiles in December 1994. Version 2 of the criteria was adopted in December 1999, with validity until June 2003. In the revision to version 3, it was decided that the Swan's criteria for textiles should be expanded so that products made of hides/skins and leather would also be covered by the criteria. In addition, a partial harmonisation with the EU Ecolabel's criteria for textiles was carried out. The Swan had some additional requirements relating to individual parameters such as requirements regarding the organic production of natural fibres. Version 3 of the criteria was expanded three times and now has validity until December 2013.

3.4 The Nordic market

There is currently a total of 12 Swan licences on the Nordic market. There are also several EU Ecolabel licences (see Table 1).

Table 1: Number of licences in the Nordic region as at 10 December 2011

	Denmark	Finland	Norway	Sweden
The Swan	4	0	3	5
EU Ecolabel	18			6

For several years there was little activity and interest in the Swan labelling of textiles, but in recent years interest has been increasing. On evaluation in 2007, only two licences existed, while on evaluation in 2009 there were 10 Swan licences. As at December 2011, the number of Swan licences is 12 and the number of EU Ecolabel licences in the Nordic region is 24. Products that are licenced include garments and under-garments for children and adults, home textiles such as bedding and hand towels, and string bags. There have also been some companies that have held a licence for a period, which have included fashion clothing such as jeans and t-shirts.

¹⁰ Information from forbrugerkemi.dk: <http://www.forbrugerkemi.dk/test-og-rad/toj/skind-og-laeder> (accessed 30 Aug 2011).

In Norway, the Teko trade association for Norwegian textiles, clothing, shoes and sports equipment has 110 member companies with approx. 3,300 employees.¹¹ According to the Danish trade association Dansk Mode og Tekstil, 350 companies are members.

In Sweden, TEKÖ has 220 member companies (producers, importers, finishers, etc.). There are approx. 10 production sites for fibres in Sweden and approx. 10 larger weaving mills.

3.5 Other labelling of textiles, hides/skins and leather

There are several different types of labels for textiles. Some are type one ecolabels such as the Swan, which assess the entire life cycle of a product and set requirements for the relevant stages in the life cycle. These are based on the ISO 14024 standard. Other labels are raw material labels, such as organic labels or fair trade labels. There are also so-called health labels, such as Øko-Tex, which shows that the final product has been tested for a range of substances.

3.5.1 Other type 1 ecolabels

EU Ecolabel

The EU Ecolabel is the official European ecolabel, established by the EU Commission in 1992¹². It is a type 1 ecolabel, which is also life cycle based. It sets requirements for relevant parameters for textiles such as raw materials and the use of pesticides, the use of chemicals, and emissions to water. The Swan's requirements are generally the same as the EU Ecolabel's requirements, since the Swan has harmonised many of its requirements with the EU Ecolabel. However, the Swan has some requirements of its own, and additional requirements for organic cotton and ethics, for example. For organic cotton, the EU Ecolabel's requirement is that 3 per cent organic cotton shall be used for the textiles on an annual basis. The criteria also provide the right to an "organic" subtitle if the product consists of over 95% organic cotton, and the percentage of organic cotton can be stated on the product if this is between 70 and 95 per cent. The EU Ecolabel is found on a range of textile products in Europe across several different branches, but perhaps within the professional contract market and the children's and baby clothes market in particular.

Bra Miljøval

Bra Miljøval is a Swedish ecolabel created by Naturskyddsforeningen¹³ and has divided its requirements into two parts; "good fiber" and "good process"¹⁴. "Good fiber" sets requirements for the farming of the raw material, and cotton and other natural fibres must be organically farmed. Synthetic fibres are approved if at least 70% of the raw material comes from recycled material. "good process" sets

¹¹ www.norskindustri.no/om_teko/ (accessed 31 Aug 2011)

¹² <http://www.eco-label.com/>

¹³ <http://www.naturskyddsforeningen.se/bra-miljoval/>

¹⁴ <http://www.naturskyddsforeningen.se/bra-miljoval/textil/kriterier/>

requirements for spinning, weaving, bleaching and dyeing, and concerns the use of chemicals, purification of effluent and energy consumption during production. The producers must fulfil the requirements for “good production”, while the requirements for “good fiber” are voluntary. The products can therefore be labelled with either “good process” or with both “good fiber” and “good process”. The reason that the label is divided into two is said to be that it is easier to adapt the treatment of the fibre (beredningen) than it is to transit to organic production. The criteria cover natural fibres such as cotton, hemp, linen and wool, as well as regenerated fibres such as viscose. Synthetic materials such as polyester can only be included if they are recycled. Bra Miljøval’s criteria for textiles are from 1996, and suggestions for new criteria are now out for consultation. The consultation paper¹⁵ states that Bra Miljøval will approve GOTS (the Global Organic Textile Standard) as verification for a range of requirements that are set. The division into “good fiber” and “good process” is maintained in the consultation paper.

3.5.2 Organic labelling schemes

GOTS

The Global Organic Textile Standard (GOTS) is a global textile standard that was developed in 2002 by a working group consisting of the certifying body The Soil Association (Great Britain), the IVN – International Association Natural Textile Industry (Germany), the US Organic Trade Association and the Japanese Organic Cotton Association (JOCA).¹⁶ The Int. Federation of Organic Culture Movement (IFOAM) also contributed to this work. Version 1 of GOTS was finalised in 2005. The standard is currently in version 3, and the standard is now being used by 14 different large certifying bodies¹⁷. GOTS has similarities to a type 1 ecolabel, but it is not stated whether GOTS follows the ISO 14024 standard for ecolabels, and GOTS is not a member of GEN (Global Ecolabelling Network). GOTS is best known as an organic label, but they also have requirements relating to the further production process. In addition, GOTS has social requirements linked to workers’ rights, as well as quality requirements. A GOTS labelled product must consist of a minimum of 70% certified organic fibre or fibre produced during conversion to organic production. A maximum of 10% regenerated or synthetic fibres can be included, with an exception for sports equipment, where the share can be 25%. From 2014, polyester that is included must be post-consumer recycled. GOTS has also prohibited the use of genetically modified raw materials. GOTS is a relatively widespread labelling scheme for organic textiles. In 2008, 1,000 factories were certified, and the figure is currently approx. 2,600. Familiarity with the label among consumers in the Nordic market is limited, and much lower than that for the Swan. In a survey carried out by YouGov on behalf of Miljømerking Danmark, 76% responded that they were not familiar with the label¹⁸. The equivalent figure for the Swan was 16%, and 43% for the EU Ecolabel.

¹⁵ Bra Miljøval kriterier Textil, remissversion 2, 2011

¹⁶ ref

¹⁸ Survey carried out by YouGov on behalf of Miljømerking Danmark

Purely organic labels

Textiles can in some cases be labelled with national organic labels such as the Norwegian Debio Ø label¹⁹. The Swedish organic scheme KRAV does not permit the labelling of textiles with KRAV, but it can be stated that the raw material is KRAV approved²⁰. In Denmark, textiles cannot be labelled with the Danish Ø-label.

3.5.3 Other labelling schemes

Øko-tex

Øko-tex is a private, third party certification label for textiles.²¹ 17 testing institutes are behind the scheme, which collaborate through the international organisation the Oeko-Tex Association. The label exists in three versions: 100, 1000 and 100 plus. Øko-tex 100 is clearly the most widespread and only covers testing to ensure that the products do not include dangerous chemicals. There are limit levels for how much of the individual substance the final product can contain. Øko-tex 100 is a health label, which focuses on the safety of consumers, and the requirements are formulated so that the closer to the skin that the products are intended to be, the stricter the requirements. Øko-tex 1000 is a labelling of environmentally adapted production sites throughout the entire production chain and goes somewhat beyond the testing of chemicals alone.²² In order to be certified in accordance with Øko-tex 1000, it is required that a minimum of 30% of the total production is already certified in accordance with Øko-tex 100. Øko-tex 100 plus is a certification which is given if it can be documented that all parts of the production chain fulfil Øko-tex 100.

Asthma and allergy recommendations

Other health labels on the market are recommendation labelling schemes from asthma and allergy associations in Norway, Sweden, Denmark and Finland respectively. The labelling schemes have no requirements regarding organic fibres. There are differences in the requirements that the national asthma and allergy labels set, and the requirements are not always publicly available. In Norway, which requirements are set are described, but an explanation of and information about how the requirements shall be documented is limited.

Asthma and allergy labels are not particularly widespread on textile products. In Norway, there are duvets and pillows produced by Mascot Høie and Nordicform that are sold by Princessgruppen. In addition, there is bedding from Høie AS, Normed, and Sleep Scandinavia. The Swedish allergy association has approved bedding from Høie AS.

¹⁹ <http://www.oikos.no/newsread/news.asp?docid=11576&wce=aktuelt> (accessed 20.12.2011)

²⁰ <http://www.krav.se/Om-KRAV/Helenas-svar/Dates/2011/10/Skillnader-mellan-KRAV-och-EU-ekologisk-odling/2011-10-30-101748/> (accessed 20.12.2011)

²¹ <http://www.oeko-tex.com/>

²² http://www.oeko-tex.com/oekotex100_public/content5.asp?area=hauptmenu&site=oekotexstandard1000&cls=02 (accessed 1 September 2011)

Bluesign

Bluesign is a system/label for textiles and leather from Bluesign Technologies ag²³. The Bluesign standard was developed in 1997, and in order to guarantee an independent and applicable standard, Bluesign Technologies ag was established in 2000. Bluesign Technologies ag is organised as a global network that has a Board consisting of representatives from political organisations, trade and industry, and consumer and environmental organisations. Bluesign has three different sets of criteria, one for textile manufacturers, one for the production sites, and one for chemical suppliers. The criteria are partly built upon the premise that BAT shall be used (Best Available Technology). The criteria are otherwise focused on environment management and that the production shall be carried out in accordance with authority requirements. The formulations in the requirements are not absolute.

The system divides production processes, technologies and components into the categories blue, grey and black. Processes and components in the blue category can always be used and follow the Bluesign standard, the grey category is for those that can be used under certain conditions, while processes and components in the black category can never be used. It is unclear how a process or component is placed in the different categories. The processes and components that are approved can be viewed in a dedicated database, Bluefinder. Bluesign operates with three different labels; “bluesign® approved” (for chemical components), “bluesign® approved fabric” (for semi-finished products), and “bluesign® safety” (for final products that fulfil all the requirements in the standard). Bluesign is a relatively new system/label, and has achieved a certain distribution, particularly within the sports market and other areas where the production process/product is more technically advanced.

Better cotton initiative

The better cotton initiative (BCI) is a voluntary programme that was started by a number of different organisations and clothing brands along the supply chain for cotton (adidas, Gap Inc., H&M, ICCO, IFAP, IKEA, Organic Exchange, Oxfam, PAN UK and WWF) in 2005²⁴. Until June 2009, BCI was organised through a steering committee consisting of global organisations that included producer organisations and trade and industry organisations. As of June 2009, BCI is a member-based organisation under Swiss law. BCI is financed by its members, SECO (the Swiss State Secretariat for Economic Affairs) and the Better Cotton Fast Track Programme, which consists of various organisations such as IKEA, H&M and adidas.

BCI works for a cotton production that shows more concern for farmers and the environment. This means that requirements are set for which pesticides are used and how they are used, including through the use of the programme for Integrated Pest Management (IPM). The quality of the soil and biodiversity shall be considered, as well as the quality of the cotton and working conditions. Requirements are also set regarding the use of water. The requirements are generally formulated, such as “a practice for optimising water consumption shall be established” or “nutrients are

²³ <http://www.bluesign.com/>

²⁴ “Better cotton initiative” – information from www.bci.org, accessed 30 August 2011

²⁵ <http://www.jlia.or.jp>

added on the basis of the crop and soil's needs". Through a dedicated "monitoring, evaluation and learning" system, the requirements are followed up through the annual collection of information on a range of parameters. The methods include both the collection of quantitative data (for example water consumption) and qualitative data based on interviews with people involved in BCI. A report with results is published each year. It is somewhat unclear who carries out the data collection and interviews. In 2010, BCI cotton was produced in India, Pakistan and Mali. Projects were started in Brazil in 2011.

There are different rules for when an organisation can use the BCI logo and refer to participation in BCI. In some cases it is possible to add a logo to the relevant product.

Japan Eco Leather

The Japanese label "Japan Eco Leather"²⁵ for hides/skins and leather labels hides/skins and leather from either domestic animals or wild animals that are not under threat of extinction. The requirements are generally based on limit values, as for Øko-tex, where the content of individual substances may not exceed a limit in the final product. In addition, it is not permitted to use dyes that are classified as carcinogenic. Requirements are also set regarding the quality of the product.

3.5.4 Various initiatives

Nordic Initiative Clean and Ethical (NICE) is an initiative that was started by the Nordic fashion industry in 2008²⁶. The organisation aims to inspire consumers, designers and others in the textile industry to undertake more sustainable and ethical production and trade. NICE has developed a guide for the textile industry with 13 principles about how this can be done. NICE is currently working with three projects. The first is NICE's 10 year plan, where the five Nordic countries have agreed to collaborate for 10 years with a focus on educating and promoting a sustainable and ethical Nordic fashion industry. Water consumption, CO₂ emissions, the use of chemicals, waste and working conditions are points of focus. The second project involves learning more about wool production and promoting wool products. The last project looks at how textile waste can be used as a resource.

Virke, the Enterprise Federation of Norway, has developed a chemical guide, where chemical products that are used in the production of textiles are reviewed²⁷. A list of prohibited chemicals and a guide with more information about the problems associated with chemicals have been created. Kemiinspektionen in Sweden has prepared a document²⁸ with advice for textile importers, and refers to TEKÖ (Svensk

²⁶ <http://www.nicefashion.org/en/about/> (accessed 24.10.2011)

²⁷ http://www.virke.no/eway/default.aspx?pid=302&trg=Main_8836&Main_8836=9069:346868::0:9068:3::0:0&noobjurl=1 (accessed 24.10.2011)

²⁸ Kemiinspektionen, Kemikalier i textilier, råd till dig som importerar och säljer textilier

Tekstil og Modeföretag) and Textilimportörerna for the textile industry's lists of problematic substances.

4 About the revision

4.1 The aim of the revision

The aim of the revision has been to develop version 4 of the criteria for the ecolabelling of textiles, hides/skins and leather. The criteria shall still be partially harmonised with those of the EU Ecolabel, but some areas will have stricter requirements where the Swan sees this as necessary and wants to maintain its own attitude to what can be ecolabelled. Nordic Ecolabelling has wanted to look at individual requirements and the application process in order to see whether it is possible to make a greater impact in the market and simplify the process for applicants. Another aim of the revision is to make the environmental benefits of the ecolabelling of textiles easier to communicate.

4.2 About this revision

The revision work has been undertaken by a working group within Nordic Ecolabelling. The revision is based on an evaluation of version 3 of the criteria. There has been contact with relevant bodies and licence holders throughout the revision. The criteria are out for consultation from 27 March 2011 – to 8 June 2012.

The working group has consisted of Eline Olsborg Hansen (Norway), Marianne B. Eskeland (Norway), Ulf Eriksson (Sweden), Ingrid Elmedal (Denmark). Karen Dahl Jensen was the project manager (PM) until spring 2011, when Eline Olsborg Hansen took over as PM.

5 Motives for the requirements

Chapter 5 provides an overview of the textile market, various textile fibres and the impact of the textile, hides/skins and leather industry on the environment and health. More detailed explanation for the individual requirements that are set is given in Chapter 6.

5.1 The textiles market and textile fibres

The clothing and textile industry is important for the global economy. According to the report “Well dressed? The present and future sustainability of clothing and textiles in the United Kingdom”²⁹, textiles contribute to 7% of the total exports in the world.

²⁹ “Well dressed? The present and future sustainability of clothing and textiles in the United Kingdom”, Allwood et al. 2006, University of Cambridge, Institute for Manufacturing

³⁰ “Tekstiler og klær – fremstilling, behandling, miljøbevissthet”, 2009, Haldis Haugland Solås

China dominates with more than ¼ of the world’s production. The textiles industry has partly been regulated by international trade agreements that were created in order to protect domestic textile production. This limited exports from developing countries to industrialised countries. This agreement has expired, and there is now free trade for textiles. Clothing has become cheaper, and the turnover from clothing and footwear has increased in recent years. Despite a reduction in the share of the household budget that is used on clothing and textiles, the purchasing of these products has increased overall. Much of the textiles production that was previously carried out in industrialised countries has now been moved to low-cost countries, and the import of clothing and textiles from Asia has increased significantly. Developing countries are now responsible for half of the world’s textile exports and ¾ of the world’s clothing exports. Cheaper textiles and a focus on fashion are factors that contribute to the world’s increasing demand for textile fibres.

Textile fibres can be divided into two main groups; natural fibres and synthetic (man-made) fibres. Natural fibres can again be divided into two sub-groups; animal fibres such as wool, mohair and silk, and vegetable fibres such as cotton and linen. Man-made fibres can also be divided into two sub-groups; regenerated cellulose fibres (e.g. viscose) and synthetic fibres based on oil (e.g. polyester and polyamide)³⁰. Table 2 provides an overview of the different types of textile fibres in the two main groups mentioned above.

Table 2: Overview of different textile fibres

Natural fibres		Synthetic fibres (man-made)	
<u>Animal fibres</u>	<u>Vegetable fibres</u>	<u>Regenerated fibres (from wood or bamboo)</u>	<u>Synthetic fibres</u>
- Wool (sheep)	- Cotton	- Viscose	- Polyamide (nylon)
- Cashmere (goat)	- Linen	- Modal	- Polyester
- Mohair (goat)	- Ramie	- Lyocell	- Polyacryl
- Angora (goat/rabbit)	- Hemp	- Cupro	- Polypropylene
- Camel (camel family)	- Jute		- Polyurethane
- Alpaca (camel family)	- Sisal		
- Vicuña (camel family)	- Bamboo		
- Silk (silkworm)	- Coconut		
	- Kapok		

³¹ Marketresearch 2010 “Statistics: Global and Regional Trends in Textile Fibre Consumption, March 2010 edition” <http://www.marketresearch.com/product/display.asp?productid=2615724>

³² Oerlikon Textile 2010 "The Fiber Year 2009/10 – preliminary version"
http://www.oerlikontextile.com/Portaldata/1/Resources/saurer_textile_solutions/media_center/fiber_year_2009_10/The_Fiber_Year_2009_10_english.pdf

³³ Textile World “The Rupp Report: The Fiber Year 2009-10”
http://www.textileworld.com/Articles/2010/May/The_Rupp_Reportx_The_Fiber_Year_2009-10.html

³⁴ Fibersource “Fiberfacts - Worldwide fiber production 2002, share by fiber type” (dataene er hentet fra rapporten “World Surveys of Manufactured Fiber Production” laget av Fiber Economics Bureau)
<http://www.fibersource.com/f-info/fiber%20production.htm>

³⁵ Organic Exchange 2010 “Organic Cotton Market Report 2009 Executive Summary”
http://organicexchange.org/oecms/images/stories/publications/2009_OE_Market_Report_Executive_Summary_for_web.pdf

In addition to regenerated fibres and synthetic fibres, there are also so-called derivative fibres based on cellulose, such as acetate and triacetate. There are also other materials that are used in textiles, such as membranes like Goretex and various types of coatings.

The share of the different fibres types on the market is estimated based on information from various sources^{31,32,33,34,35} and shown in Figure 1.

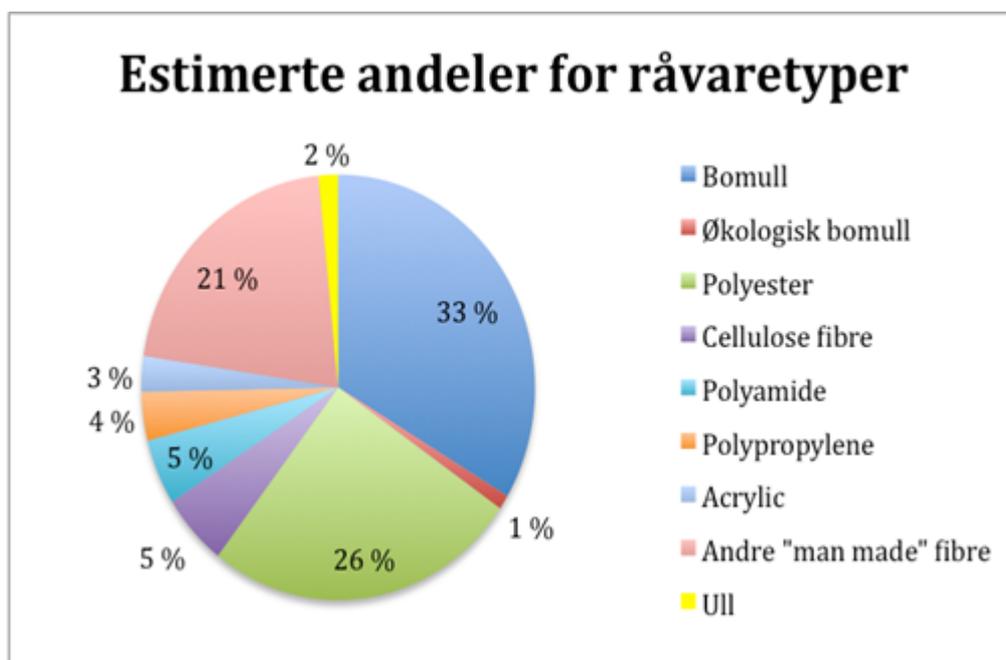


Figure 1: Estimated shares of raw material types

The overview shows that synthetic fibres constitute approx. 60% of the fibre types on the market. Of natural fibres, cotton is the dominating fibre type.

Cotton is currently the most used textile fibre in the world, something which it has been for a long time. However, in recent years, cotton has lost market shares to synthetic fibres. The trend shows a marked increase in the demand for synthetic fibres, dominated by polyester, while the demand for natural fibres has been relatively constant³⁶. In recent years, there has been more focus on ethical aspects and

³⁶ "Well dressed? The present and future sustainability of clothing and textiles in the United Kingdom", Allwood et al. 2006, University of Cambridge, Institute for Manufacturing

environmental problems linked to the production of textiles. This has resulted in producers and chains marketing the fact that they use organic cotton in their garments. However, on a world-wide basis, the share of organic cotton is very low, and was estimated to be approx. 1.1% in 2010³⁷.

5.1.1 Vegetable fibres

Vegetable fibres are fibres whose main component is cellulose. The fibres can be produced from the plant's stem (bast fibres, such as linen), leaves (e.g. sisal) or fruits (seed hair, such as cotton).

Cotton

As Figure 1 shows, cotton is clearly the most used natural fibre on the market, with a 33% market share. Cotton is produced in more than 100 countries, but the most important are China (24%), the USA (19%), India (16%), Pakistan (10%), Brazil (5%) and Uzbekistan (4%)³⁸. In total, cotton is farmed on 2.4% of the world's cultivatable land. This figure varies somewhat from year to year, while the total cotton production and yield per area increases. The increased production of textiles has resulted in an increased demand for cotton, and in 2010 there was a cotton deficit of around 15%. It is estimated that approx. 20 million farmers are dependent upon cotton production, and that another 30 million farmers include cotton in their agricultural rotations.

There is great variation in how cotton is farmed. High-tech cotton production with large farmed areas and machines is typical in the USA and Australia, while in most other countries in which cotton is farmed, such as China, India, Pakistan, Uzbekistan, Egypt and Uganda, there is low-tech production where the farmed areas are small and the workforce consists of animals and people. Cotton can either be farmed on the same area year after year, or be included in rotational farming, where the type of plant that is farmed varies from year to year.

The areas in which cotton is currently farmed are mainly tropical and sub-tropical areas. Cotton requires a high temperature, and is sensitive to drought³⁹. Cotton is farmed both in areas where irrigation is used, and in areas where only rainwater is

³⁷ Textile exchange, 2010 Farm and Fiber report, 2010,
http://farmhub.textileexchange.org/upload/library/Farm%20and%20fiber%20report/Farm_Fibre%20Report%202010%20Final_exec%20summary_web.pdf (accessed 6 Sept 2011)

³⁸ "The sustainability of cotton – consequences for man and the environment", Kooistra K., Termorshuizen A and Pyburn R., Wageningen University & Reserach center, report no. 223, April 2006

³⁹ "The sustainability of cotton – consequences for man and the environment", Kooistra K., Termorshuizen A and Pyburn R., Wageningen University & Reserach center, report nr. 223, April 2006

⁴⁰ http://www.imo.ch/imo_services_textile_news3_en.html (accessed 27.10.2011)

used in the farming. Typical rainwater areas are mainly found in parts of India, Brazil and West Africa. The yield is often lower in these areas, since the farmers depend upon getting enough rain. 53% of cotton farming uses irrigation, but since the yield is often greater when irrigation is used, this production accounts for a total of 73 % of the world's cotton production.

Much of the cotton that is produced is sold on to other countries where the further production of the fibres and product is carried out. Cotton is traded on the cotton stock market, where cotton from different producers and of different qualities is mixed together. It is therefore difficult to maintain traceability of cotton that is traded in this way. Cotton that is certified in accordance with a scheme, such as organic and fair trade cotton, is easier to trace through the certification systems. It is also possible to purchase GOTS certified cotton. Specific traceability standards have been developed for organic cotton. IMO, the Institute for Marketecology, has developed two standards, the OE 100 Standard and OE Blended Standard⁴⁰. The OE 100 Standard shall ensure third party control that the cotton in the products is organic, while the OE Blended standard shall ensure that organic cotton in mixed products is used in the percentage stated on the product. Both standards shall ensure traceability throughout the entire production chain.

Linen

Linen fibre is produced from the flax plant, and has a long history as a raw material in the production of clothing⁴¹. The largest producers of linen are currently France, Belgium, the Netherlands, China, Poland, the Czech Republic and Slovakia. 122,000 tonnes of linen fibre were produced in the EU in 2007, while China produced 25,000 tonnes⁴². Linen grows best in a cool and damp climate, and has been farmed throughout Europe. However, the production of linen has declined, and is small compared with cotton³⁰. The production process from plant to fibre is long, which can be one reason why linen is more expensive than cotton.

Hemp

Hemp fibre is produced from Cannabis plants, and the farming of hemp is therefore forbidden in several countries. In the EU, only approved types of hemp which contain very low levels of narcotics may be farmed. Hemp can be used for many purposes and is an extremely more productive plant than the other plant fibres. China is the world's leading hemp producer, but there is also some production in Europe, Chile and Korea.

⁴¹ Haldis Haugland Solås, "Tekstiler og klær – fremstilling, behandling, miljøbevissthet", 2009

⁴² <http://www.naturalfibres2009.org/en/fibres/flax.html>

⁴³ <http://www.naturalfibres2009.org/en/fibres/hemp.html> (accessed 13 Sept 2011)

⁴⁴ <http://www.naturalfibres2009.org/en/fibres/index.html> (accessed 13 Sept 2011)

⁴⁵ <http://www.natureworksllc.com/Product-and-Applications/Apparel.aspx> (accessed 25.01.2012)

The production of hemp increased from 50,000 tonnes in 2000, to 90,000 tonnes in 2006⁴³. There are few clothing products made from hemp on the market.

Other vegetable fibres

There are a number of other vegetable fibres that are used in the production of textiles, such as sisal, jute, ramie, coconut and bamboo. Several of these fibres are used extensively in the production of carpets, mats, rope, bags, furnishing fabrics and the like, since they have qualities that render them suited to such products^{30,44}. Bamboo can also be used as a raw material in the production of regenerated cellulose fibres such as viscose, and is often marketed as being environmentally friendly.

PLA (polylactic acid)

PLA (polylactic acid) is a polymer produced from renewable raw materials such as maize, and which can be used in textiles. This is a new polymer which is not currently in widespread use on the market. NatureWorks, a producer of PLA, writes on its website that PLA has good qualities relating to breathability, moisture and isolation, and is suitable for use in sportswear⁴⁵.

5.1.2 Animal fibres

Wool

Of all animal fibres, wool from sheep is by far the most dominating wool fibre on the market. The annual production of sheep's wool is approx. 2.1 million tonnes⁴⁶. Australia is the largest producer, with 1/5 of the market, while other large wool producers include China, New Zealand, Iran, Argentina and the UK.

Some of the most exclusive wool on the market is cashmere wool from the cashmere goat. Cashmere is produced in China and Mongolia, with China being the largest producer. Approximately 15-20,000 tonnes of coarse cashmere wool is produced annually, but following treatment only approx. 6,500 tonnes of "pure" cashmere remain³⁷.

Another type of goat's wool is mohair. South Africa is the largest mohair producer, while the USA is another large producer. Annual mohair production totals approx. 5,000 tonnes³⁷.

⁴⁶ <http://www.naturalfibres2009.org/en/fibres/wool.html> (accessed 13 Sept 2011)

⁴⁷ <http://www.naturalfibres2009.org/en/fibres/angora.html> (accessed 13 Sept 2011)

⁴⁸ <http://www.naturalfibres2009.org/en/fibres/alpaca.html> (accessed 13 Sept 2011)

⁴⁹ <http://www.naturalfibres2009.org/en/fibres/camel.html> (accessed 13 Sept 2011)

A third type of exclusive wool is angora wool from rabbits. France was previously the largest producer of angora, but China has now taken over as the largest producer. Other countries that produce angora are Argentina, Chile, the Czech Republic and Hungary. Between 2,500 and 3,000 tonnes are produced annually⁴⁷.

Of other animal fibres, there is wool from alpaca and camels. Alpaca is mainly produced in Peru, Bolivia and Chile, and is the main source of income for approximately 120,000 families in the highlands (the Andes mountains) here. In addition, there are also herds in North America and Australia, and the share in these areas is increasing. There are limited opportunities to extend production in the Andes due to a lack of suitable grazing areas. Peru is the largest producer, and it is estimated that the country produces 6,500 tonnes of alpaca wool annually⁴⁸.

Camel fibre is mainly produced in China, Mongolia, Afghanistan and Iran. There is little information about the total production. In the 1990s, production was estimated at a total of approx. 2,000 tonnes in China. Only a small proportion of camel fibres are exported and sold on the international market⁴⁹.

Silk

Silk is produced by the silkworm, *Bombyx mori*. Silk is produced in many countries, but the largest producers are located in Asia. Brazil is also a large producer. The production and further treatment of the silk thread is an important source of income for many households in China, India and Thailand. Global silk production totals around 150,000 tonnes⁵⁰.

5.1.3 Man-made fibres

Man-made fibres can be divided into oil-based fibres (synthetic) and regenerated cellulose fibres.

Synthetic fibres

Synthetic fibres constitute approx. 60% of the consumption of fibres in the world (see Figure 1). There are four dominating fibre types; polyester, nylon, acrylic and

⁵⁰ <http://www.naturalfibres2009.org/en/fibres/silk.html>

⁵¹ <http://oecotextiles.wordpress.com/2010/07/07/man-made-synthetic-fibers/> (accessed 21 Sept 2011)

⁵² "Well dressed? The present and future sustainability of clothing and textiles in the United Kingdom", Allwood et al. 2006, University of Cambridge, Institute for Manufacturing

⁵³ World Viscose fiber report 2010:

http://www.yarnsandfibers.com/revamp_ir/report_fullstory.php3?desc=yes&id=542&p_type=15&source_id=15&source=1111ial%20Reports&story_type=F&BF=&show=Description (accessed 21 Sept 2011)

polyolefins⁵¹. The most common synthetic fibre is polyester⁵². In 2004, a total of approx. 28 million tonnes of polyester were produced. Of other synthetic fibres, approximately 6 million tonnes of nylon and 4 million tonnes of acrylic were produced in 2004. In recent years, much of the production of synthetic fibres has been moved from the USA and Europe to Asia. In 1990, China was responsible for approximately 8% of the production, while in 2002, this had increased to 30%³⁹.

Regenerated cellulose fibres

Viscose, which is produced from regenerated cellulose fibres, constitutes approximately 5% of the total fibre production (see Fig. 1). The main production of viscose is carried out in Asia, (approx. 85%), with China as the dominating country. Europe stands for approx. 15% of the viscose production⁵³. Viscose is also known as rayon. Other cellulose fibres are Modal and Lyocell. Modal is a fibre that has been developed from viscose by Lenzing. Lyocell is a relatively new cellulose fibre, which is similar to viscose, but more durable. Lyocell is also known by the trade name Tencel, for which Lenzing has the patent.

5.1.4 Hides/skins and leather

Hides/skins and leather that are used to create clothing, shoes and accessories can be from many different species of animal. Usually, leather comes from livestock such as ox and sheep. Leather from ox comes mainly from the USA, Argentina, Russia and various EU countries⁵⁴. New Zealand, Australia, and parts of Asia and the EU are the main exporters of sheepskin. Hides/skins from other domestic animals such as goats and pigs are also used. In addition, there are hides/skins from wild animals such as elk, reindeer and deer on the market. The hides/skins of more exotic species, such as crocodile and snakes, are not usual in the Nordic countries or the EU. In some parts of the world, mainly in Arctic regions, seal skin is also used. The EU is a net importer of hides/skins, but the world's largest exporter of leather⁴⁸. Italy and Spain are the largest producers of leather, followed by France, Germany and the UK. However, the EU's market share is decreasing since the leather industry is increasing in other parts of the world, such as Asia and America.

The main product of the European leather industry is leather for footwear (approx. 50%). Leather for the clothing industry constitutes approx. 20% and leather for furniture and cars approx. 17%. The share of leather for other types of products is approx. 13%.

⁵⁴ BAT, 2003: Reference document on Best Available Techniques for the tanning of hides and skin

⁵⁵ "The role and business case for existing and emerging fibres in sustainable clothing", April 2010, report from Department for Environmental, Food and Rural Affairs, UK.

5.2 The impact of textiles, hides/skins and leather on the environment and health

5.2.1 LCA of textiles

Several LCA studies of textiles have been carried out. The number of fibre types included in the studies is unfortunately limited. Of natural fibres, cotton is the most dominating, and it is rare that other natural fibres are investigated. Of the synthetic fibres, polyester is the fibre that is most often studied. The most common environmental factors that are studied are energy consumption and water consumption. For other parameters, such as global warming, the depletion of natural resources, the use of chemicals, pesticides and fertilisers and land use, varying information is available.

In general, the environmental impact in the various phases of the product’s life cycle varies with the type of fibre, and it is therefore difficult to identify a fibre type that is better than others in all parameters. An attempt has been made to simplify and summarise this complexity in Table 3, taken from the report “The role and business case for existing and emerging fibres in sustainable clothing”.⁵⁵ Here, it is pointed out that this is based on LCA studies that look at fibre production, i.e. cradle to gate. The use phase and waste phase are not included in the considerations below.

Table 3: Ranking of different fibres’ environmental impact in various categories (Chemical use is not included directly here, see more about chemicals later in this section).

Reduced environmental impact	Energy use	Water consumption	Greenhouse gases	Effluent	Land use
↓	Acrylic Nylon Polyester Regenerated cellulose (viscose, Modal) PLA/Cotton/Lyocell Wool Natural bast fibre (nettle, hemp, flax)	Cotton Silk Nylon Regenerated cellulose Acrylic Hemp Wool Natural bast fibre Polyester	Nylon Polyester Lyocell PLA Viscose Modal Cotton Natural bast fibre Wool	Wool Regenerated cellulose Natural bast fibre Nylon Polyester	Wool Ramie Cotton Linen Hemp Viscose and Modal Jute PLA Lyocell

Some general traits are that the production of synthetic fibres has higher energy consumption than that for natural fibres. However, the production of cotton has somewhat higher energy consumption than that of other natural fibres.

In terms of water consumption, cotton is the fibre type which clearly uses the most water. This is particularly due to high water consumption during the cultivation of the cotton plant. Silk has high water consumption during spinning, while nylon uses a lot of water during both polymer production and spinning. Regenerated cellulose fibres have relatively high water consumption due to the production of pulp. Other natural fibres and polyester have low water consumption.

Greenhouse gas emissions will to a great extent be linked to energy consumption. In addition, the synthetic fibres will appear worse in this area due to the use of fossil fuels as a raw material in polymer production.

Emissions of dyes, finishing agents, traces of pesticides and the amount of organic material are relevant parameters linked to effluent. Here, natural fibres, and wool in particular, have the highest environmental impact, because raw wool has high lanolin content. The last parameter, land use, is only relevant to natural fibres, regenerated cellulose fibres and polymers from natural raw materials such as PLA. This is a complex parameter, and there is little concrete data that can be used to estimate the environmental impact. In general, cotton has a greater environmental impact than regenerated fibres and PLA. Wool is highlighted as the fibre with the highest environmental impact, but since wool is mainly a bi-product from meat production, and grazing is carried out on non-farmable land, this is less relevant.

A parameter that is not directly mentioned in Table 2 is the use of chemicals. Many chemicals are used in the textile industry, in the farming of raw materials, production of polymers, dyeing and other chemical treatment of textiles in order to achieve the desired quality. This will be shown in the “effluent” parameter to a certain extent, but not all the chemical use will be covered here. In terms of the cultivation of fibres, it is particularly the use of pesticides that is relevant. Cotton stands out here with a high consumption of pesticides.⁵⁶ The use of fertiliser and any natural fertiliser is important. Many chemicals are used in the production of synthetic fibres. For example, the production of nylon will result in emissions of nitrous oxide, which is a greenhouse gas, while antimony trioxide, which is classified as possibly carcinogenic, can be a problem in catalysts in the production of polyester.

In cradle to gate studies, where the use phase and waste phase are also included, it is clear that the use phase has a great effect on the result. This phase actually often has the greatest total environmental impact in a textile product’s life cycle, followed by the production phase.^{57,58} The use phase includes washing, dry cleaning and any ironing. It is the use of energy and chemicals that is affected in particular. The consumer’s washing frequency, the use of tumble dryer and any ironing are the factors that have the greatest effect here. Since this varies greatly from person to person, the assumptions made here may significantly affect the result, but this is a factor over which Nordic Ecolabelling has little control. It is however worth noting that the selection of fibre affects the environmental impact during the use phase. For

⁵⁶ “The sustainability of cotton – consequences for man and the environment”, Kooistra K., Termorshuizen A and Pyburn R., Wageningen University & Reserach center, report nr. 223, April 2006

⁵⁷ “UMPITEX – Miljøvurdering af tekstiler”, arbejdsrapport fra Miljøstyrelsen nr. 3, 2006

⁵⁸ “Mistra future fashion – Review of life cycle assessments of clothing”, Chapman, Oakdene Hollins Research and consulting, report for MISTRA, October 2010

⁵⁹ “Environmental profile of cotton and polyester-cotton fabrics”, Kalliala E.M. and Nousiainen P., AUTEX Research Journal Vol 1, No. 1, 1999

example, the study “Environmental profile of cotton and polyester-cotton fabrics”⁵⁹ has shown that, despite a higher energy consumption during the production of a mixed fibre product made from polyester/cotton, a purely cotton fabric would have a significantly higher energy and water consumption overall when compared with the mixed product. This was mainly due to a higher energy and water consumption for the pure cotton fabric during the use phase. In order to reduce the environmental impact during the use phase, mixed fibre products can be created, coatings can be added, or antibacterial agents can be added which reduce smells. However, it is not given that this is positive in terms of the environment, since coatings and antibacterial agents can be problematic. There is for example concern linked to the use of silver as an antibacterial agent, since this can contribute to an increased distribution of silver in the environment and possibly increased bacterial resistance to antibiotics. In this context, it should also be taken into account that mixed fibre products can reduce any effective reuse of the fibres. The waste phase has relatively little importance in the life cycle of a textile, but generally reuse will provide a lower impact than recycling, which again will provide a lower impact than combustion or landfill disposal.

A summary of the results shows that the use phase contributes most to the impact of most of the environmental indicators in cradle to gate studies. However, it should be noted that this is to a great extent dependent on the assumptions that are made in the study. After the use phase comes the production phase. Other activities such as transport, storage and waste contribute little.

5.2.2 The impact of the production of fibres on the environment and health

Cotton

The cultivation and harvesting of cotton is linked to serious environmental and health problems. This is mainly due to the use of pesticides and other chemicals during production, but other factors, such as water consumption, can also be significant for the environmental impact.

The cotton plant is exposed to attacks from insects which can reduce the yield significantly. On a worldwide basis, it is estimated that 15% of cotton is lost due to insect attacks. The solution to this has mainly been the use of pesticides. On a worldwide basis, cotton is farmed on approx. 2.5% of land areas, but accounts for 25% of the world’s pesticide use⁶⁰. Many of the pesticides that are used are extremely harmful to both health and the environment. Despite the fact that several of the most harmful pesticides are prohibited, many of these are still used in developing countries. Several are neurotoxic and classified by the WHO as highly or extremely harmful. Much cotton production is carried out in developing countries, and the most common method of applying pesticides is through the use of hand pumps and other types of

⁶⁰ “The sustainability of cotton – consequences for man and the environment”, Kooistra K., Termorshuizen A and Pyburn R., Wageningen University & Reserach center, report no. 223, April 2006

spraying equipment directly in the field. Since there is often insufficient use of protective equipment, the exposure is great. The use of pesticides is also problematic for small farmers who also produce food. It is estimated that approx. 40,000 people die annually due to the use of pesticides. In industrialised countries, such as the USA, there is greater control of which pesticides can be used, and the application methods that are used are better. Environmental problems linked to the use of pesticides are among other things an effect on biodiversity, since other species are also affected. It is estimated that 67 million birds die annually due to the use of pesticides. Natural predators are also often affected, something which will again result in a higher incidence of harmful insects. In addition, species can develop resistance to the pesticide.

Other chemicals that result in environmental problems equivalent to those of pesticides are those that remove leaves. This is done in order to harvest the cotton more easily, and is an effective method. Such chemical products are used in approx. 15% of all cotton production.

The use of fertiliser has recognised negative environmental effects. Run off from agriculture is one of the main reasons for eutrophication. In addition, fertiliser is energy-intensive to produce, and the mining industry that extract phosphorus and potassium can result in environmental effects such as a change in the landscape, and water and air pollution. There is also concern regarding the total quantities of phosphorous found in the earth, since phosphorous is very important in food production. The excessive use of phosphorous will result in resources of phosphorous being depleted more quickly⁶¹.

Problems linked to irrigation can also be significant. Fresh water is an important resource, and overconsumption can result in great problems. The ruining of the soil through increased salt content is one of the most serious effects. This results in agricultural land being ruined, and that areas must be abandoned. Other side effects include a lack of water downstream of the water supply, with consequences for animal life and access to water for humans. The use of groundwater is not often sustainable, since the extraction exceeds the natural supply. It should however be pointed out that irrigation and overconsumption are not only related to the production of cotton, but a general problem in agricultural areas with little water. It has been estimated that the farming of cotton is responsible for 1-6% of the reduction in the world's fresh water resources⁵⁶.

There are several ways to reduce the impact of the production of cotton on the environment and health. The use of protective equipment and training of the farmers in the use of pesticides, as well as improved control of which pesticides are used, are important measures. These are focus points in the so-called IPM (Integrated Pest Management) system⁵⁶. Here, requirements are also set for the reduction of the use of

⁶¹ <http://www.forskning.no/artikler/2008/desember/202763> (accessed 20.12.2011)

⁶² "The sustainability of cotton – consequences for man and the environment", Kooistra K., Termorshuizen A and Pyburn R., Wageningen University & Reserach center, report no. 223, April 2006

fertilisers and energy. Globally, it is estimated that approx. 20% of all cotton production is IPM.

The environmental impact of cotton production can also be reduced through organic farming. The main difference between conventional and organic cotton production is that no pesticides or fertilisers are used during organic production. This results in less damage to the natural environment and the health of farmers. This is however probably one of the greatest challenges for those who carry out organic cotton production, since the cotton plant is easily exposed to attack by insects. Environmental problems that are not solved by organic production are problems linked to irrigation. How much water is used is dependent upon both the country/area and irrigation method. Much of the organic farming that is currently carried out is undertaken in areas where rainwater is the main water source, something that reduces the problems relating to water production⁶². Another aspect of organic production that is often discussed is the yield. For cotton, it is difficult to say whether there is any difference between the yield for conventional vs. organic production. Part of the reason for this is that there are already large differences in yield within the individual system.

Another large difference between conventional and organic farming is the use of genetically modified (GM) plants. This is not permitted in organic production, but much of today's cotton production is based on GM plants. The share of genetically modified cotton on the world market is approx. 30 per cent (2008), but this figure is expected to increase. 80% of the cotton that is farmed in the USA and 66% of that which is farmed in China is genetically modified. The most common genetically modified cotton has been given a gene from bacteria that produce a poison which is not tolerated by insects, the so-called Bt cotton. Another genetically modified cotton variety is cotton that is resistant to glyphosate, the active ingredient in herbicides such as Roundup. Both these variants are developed by Monsanto, which produces both the genetically modified cotton and the relevant chemical sprays⁶³. There is great uncertainty linked to the environmental effects of genetically modified plants. There are great questions relating to whether the use of chemical sprays will be reduced through the use of GMO, as GMO supporters claim. There are also various social and ethical problems related to GMO production⁶⁴.

Other vegetable fibres

Compared to cotton, other vegetable fibres are often regarded as a more environmentally friendly alternative. For example, linen and hemp are plants that

⁶³ Skitne klær – En vurdering av miljø og arbeidsforhold ved produksjon og bruk, og sammenligning av leverandører”, desember 2008, Forum for Utvikling og miljø

⁶⁴ “Genetically modified organisms – a summary of potential adverse effects relevant to sustainable development”, 2011, report ordered by Miljømerking

⁶⁵ Teknologirådet, 2001; Nr. 112: Fordele og ulemper ved hampdyrking i Danmark.

grow with the use of few nutrients. Linen is seldom attacked by pests, but does face competition from weeds. For hemp, there is little need for chemical sprays and the plant can add nutrients to the soil (Teknologirådet, 2001)⁶⁵.

The following treatment in order to extract the fibres, known as water retting, can however lead to pollution, since the plants shall soak in the water. The problem is that a great quantity of oxygen-consuming substances ends up in the effluent. Purification of the water is simple, but often not done. This method for treating plants is therefore prohibited in Germany and France, but not for example in Poland and China. A newer, more environmentally friendly method is to place the plant in a tank and add various enzymes.

Textiles made of linen and hemp are also known to crease more easily, something which results in these textiles often being surface treated, for example with substances that can release formaldehyde.

Another vegetable fibre that has entered the market in recent years is bamboo. Bamboo textiles are marketed with properties such as being extra soft, strong, quick drying and having natural antibacterial and anti-static properties. Bamboo towels soak up more moisture than cotton ones. The bamboo fibres are created from a bamboo mass that is spun⁶⁶. Bamboo is a fast growing grass, and does not normally require fertilisation or the use of pesticides, and is therefore often presented as an environmentally friendly alternative to other natural fibres such as cotton. China has a lot of bamboo, and the grass is regarded as a natural resource and extracted from unregulated natural forests in southwest China. There can however be problems with such felling because this can damage habitats that are important for animals such as the red panda and giant panda, as well as damage the ecosystem in general⁶⁷. Bamboo is also farmed in different forms of plantation. Bamboo can be included as a raw material in the production of regenerated cellulose fibres such as viscose.

Animal fibres

Sheep can be exposed to the use of chemicals that are harmful to health and the environment in order to remove parasites from the wool. Organophosphates and pyrethroids are used, among others. The chemicals can result in nerve damage in humans and are extremely toxic for the environment. During the further wet treatment of wool, much organic material (lanolin) is released into the effluent, which can create problems in the environment. A high COD content can result in a lack of oxygen in

⁶⁶ LoveToKnow, an American online media firm that wishes to provide high quality information via the net. http://organic.lovetoknow.com/Organic_Bamboo_Fabric

⁶⁷ From INBAR's website about the "Bamboo Forest Biodiversity Conservation project", <http://www.inbar.int/Board.asp?BoardID=280>

the aquatic environment and be harmful to animal and plant life. However, lanolin is often retained and used for other purposes, such as in cosmetics.

Synthetic fibres

In the production of synthetic fibres, it is oil or gas that is the raw substance. Oil is non-renewable, and the extraction of oil can create great environmental problems. Environmentally harmful chemicals are used in the production of different synthetic fibres, including antimony trioxide in the production of polyester. In addition, the production can result in emissions of problematic compounds to the air, such as NO_x and VOC.

Regenerated cellulose fibres

In the production of regenerated cellulose fibres such as viscose, the extraction of raw material – the forest – is important for cellulose production. In order to maintain a productive forest where biological diversity is retained, it is important to focus on sustainable development. Much energy and many chemicals are used in the production of cellulose mass. Following cleaning and bleaching with NaOH (alkalinisation), the mass swells and is treated further with CS₂ to become cellulose xanthogenate. This coagulates in an acid bath containing H₂SO₄, NaSO₄ and ZnSO₄. Following further maturation, filtering and degassing, the viscose is spun. Because viscose is normally produced on the basis of a chemical mass, there can be great COD emissions from the production. Further production of viscose results in emissions of both sulphur and zinc. Other regenerated cellulose fibres than viscose are Modal and Lyocell. Modal is a further development of viscose, and has slightly different qualities. For example, it is easier to wrinkle-free treat than viscose. Lyocell, also known under the trade name Tencel, is also a cellulose fibre that is similar to viscose, but with a slightly different production process.

For more information about environmental problems linked to the production of cellulose masses, refer to Nordic Ecolabelling's background document for the Basis module, version 2.

5.2.3 The impact of the finishing of fibres and the production of textiles on the environment and health

In addition to environmental and health problems associated with the production of the fibres, there are also problems linked to the further treatment of the fibres. The fibre and textile undergo many chemical processes in order to attain various qualities. Common fibre and textile treatments include dyeing, printing and finishing. The finishing can include softening, anti-wrinkle treatment, impregnation or antibacterial treatment. From all these processes, undesirable chemicals can remain in the textile, and several Nordic and international surveys have shown this.

Some of the chemicals found during analyses include prohibited azo dyes, heavy metals, nonylphenol ethoxylates, polyfluorinated organic compounds (PFCs), phthalates and triclosan.^{68,69,70,71}

⁶⁸ SFT 2004, Kartlegging av tilførsel og spredning av farlige stoffer fra utlagte tekstiler, TA-2002/2004

Several azo dyes are prohibited. These are dyes that may be carcinogenic⁷². Nonylphenol etoxylates are used in the textile industry as detergents and are harmful to the environment and can cause reproduction problems.

Phthalates are a group of chemicals that can cause endocrine disturbances and which can reduce fertility⁷³. They can be found in rainwear and in PVC printing on textiles.

Triclosan is an antibacterial substance. Such substances can for example be added to sportswear. They are harmful to the environment and suspected of increasing resistance to antibiotics⁷⁴.

Polyfluorinated organic compounds are used in the impregnation and coatings of textiles. They are toxic, can accumulate in the environment, and are difficult to break down. Many of these substances are thought to be harmful to the reproductive system⁷⁵.

It is also common for textiles to contain chemicals that can result in allergic reactions. The use of such chemicals presents a risk for the end user of the product, workers and the environment.

Emissions of polluted water can be a great strain on the environment at the production sites. With the increased production of textiles in poorer countries, there can be poorer chemical regulations and emissions requirements than in industrialised countries,

⁶⁹ Miljøstyrelsen 2011. Kortlægning af kemiske stoffer i forbrugerprodukter Nr. 113 2011

⁷⁰ Kemikalieinspektionen 1997, Kemikalier i tekstiler, KEMI-rapport 2/97

⁷¹ Greenpeace 2011, Dirty laundry 2: Hung out to dry

⁷² Miljøstyrelsen, faktaark om azo-farvestoffer:

http://www.mst.dk/Virksomhed_og_myndighed/Kemikalier/regulering_og_regler/faktaark_kemikalie_reglerne/Azofarvestoffer.htm (accessed 04.11.2011)

⁷³ Miljøstatus i Norge: <http://www.miljostatus.no/no/Tema/Kjemikalier/Noen-farlige-kjemikalier/Ftalater/> (accessed 04.11.2011)

⁷⁴ Miljøstatus i Norge: <http://www.miljostatus.no/Tema/Kjemikalier/Produkter/Tekstiler/> (accessed 04.11.2011)

⁷⁵ Miljøstatus i Norge: <http://www.miljostatus.no/no/Tema/Kjemikalier/Noen-farlige-kjemikalier/PFOS-PFOA-og-andre-PFCs/> (accessed 04.11.2011)

⁷⁶ BAT 2003, Reference document on Best Available Techniques for the tanning of hides and skin

something which can result in an increase in the problems associated with the use of chemicals.

5.2.4 The impact of the production of hides/skins and leather on the environment and health

The production of hides/skins and leather can have a great impact on the environment⁷⁶. There can be environmental effects linked to the use of chemicals, effluent, waste, and emissions to both the air and soil.

In order to make hides/skins into leather, the hide must go through a tanning process, in which a number of chemicals are used. Leather is a stable material that can be used in the production of many different products. Often, the leather must be transported over great distances, and can then either be cooled using ice or refrigerated storage, which requires energy, or be salted. Salt can be a problem in the drainage system, with 65kg chloride per tonne of leather⁶¹.

The actual tanning of the leather can be carried out in various ways, but the most common method is to use chromous salt, which is a limited resource. According to the BAT document from 2003, 90% of leather is tanned through the use of chromium. A report from Miljøstyrelsen, “Kortlægning af kemiske stoffer i forbrugerprodukter” from 2011⁷⁷ states that 80% of leather is tanned using chromium. Traces of chromium, particularly hexavalent chromium, in the leather can result in allergic reactions for the user, since this is an allergenic substance. In addition, it is carcinogenic and extremely toxic to aquatic life⁷⁸. Hexavalent chromium is not used during tanning, but trivalent chromium can be transformed into hexavalent chromium under certain conditions⁶². A reduction in the amount of chromium, recycling of chromium and control of the process and effluent can reduce the environmental problems associated with chromium tanning. An alternative to chromium tanning is vegetable tanning, but this has a limited area of use since vegetable-tanned leather has different qualities to chromium-tanned leather.

During vegetable tanning, various plant extracts are used, such as from bark or roots. Informationscenteret for miljø og sundhed in Denmark⁷⁹ and an LCA study from

⁷⁷ Miljøstyrelsen, “Kortlægning af kemiske stoffer i forbrugerprodukter”, nr 112 2011

⁷⁸ <http://www.erdetfarlig.no/Farlige-stoffer/Krom/>

⁷⁹ <http://www.forbruger kemi.dk/test-og-rad/toj/skind-og-laeder/rad-og-fakta-om-skind-og-laeder>
(accessed 02.11.2011)

⁸⁰ Ecobilan, 2003, LCA Study – a comparison of tanning technologies.

Ecobilan in 2003⁸⁰ state that vegetable tanning is not generally better for the environment than chromium tanning, since this is more dependent upon the conditions at the individual tannery. Heavy metals such as cadmium and lead can also be found in hides/skins and leather. Other problematic substances can be complexing agents such as EDTA and NTA, halogenated organic compounds, surfactants such as alkylphenol etoxylates (APEOs) and dyes. Effluent from tanneries which contain COD, organic compounds which use up the oxygen in the aquatic environment on breaking down, can be a great problem if an adequate purification plant does not exist.

The BAT report states that there is limited information about the energy consumption in tanneries, but there may for example be significant consumption linked to the drying processes during tanning.

5.3 Ethical problems

There are several ethical problems that are relevant to the production of textiles, hides/skins and leather. In the textiles industry, there are problems with poor working conditions in several parts of the production chain. These might be related to the use of dangerous chemicals, poor protective equipment, long working hours, poor working conditions and child labour.

There can also be several ethical issues relating to animals. One example is Merino wool. The majority of this type of wool comes from Australia. The Merino sheep is specially bred to have a wrinkled skin in order to achieve more wool on the sheep. This excess skin collects urine and faeces in the hindquarters, which attracts flies that lay eggs in the folds of the skin. Mulesing is the method used to keep the flies at bay, which involves the coat and skin of the hindquarters of the sheep being removed without anaesthetic.⁸¹ Mulesing has been much discussed in recent years, and in 2004, the industry in Australia (AWI) promised that mulesing would be phased out by the end of 2010, but how successful this has been has been criticised^{82,83}. Due to animal rights reasons, there are therefore some companies that select alternative sources of Merino wool, for example from Patagonia in Argentina, where they can guarantee that the wool has been produced without mulesing.

⁸¹ RSPCA: (http://kb.rspca.org.au/What-is-mulesing-and-what-are-the-alternatives_113.html) accessed 09 Dec 2011

⁸² (<http://theconversation.edu.au/how-the-wool-industry-has-undercut-itself-on-mulesing-956>) accessed 09 Dec 2011

⁸³ (<http://www.firstthings.com/blogs/secondhandsmoke/2011/04/07/peta-attacks-australia-wool-industry-again-for-musling/>) accessed 09 Dec 2011

⁸⁴ EFSA Scientific Opinion on the practice of harvesting (collecting) feathers from live geese for down production, 25 November 2010

Another example of ethical issues relating to animals is down that is plucked from live geese without anaesthesia. The European Food Safety Authority (EFSA) has looked into this problem and concluded that it is possible to remove down and feathers from living geese without causing pain to the animals, as long as this is done during the period when the feathers are shed⁸⁴. The problem is that this is not followed in the commercial production.

6 Background for the requirements

Chapter 6 provides the reasons for the requirements set by the Swan. The requirements are based on a review of the RPS analysis for textiles, hides/skins and leather in Chapter 3.2, and the environmental impact of textile production and ethical problems as described in Chapters 5.2 and 5.3. This means that the requirements are focused on relevant (R) environmental and health problems linked to the production of textiles, hides/skins and leather, while also focusing on whether there is potential (P) for improvement. In addition, Nordic Ecolabelling evaluates whether it is possible to set a requirement, i.e. whether there is steerability (S). It must be practically possible for the producers to fulfil the requirement, and to acquire reliable documentation.

6.1 The relationship to the EU Ecolabel

The Swan has partially harmonised its requirements with the EU's criteria for the ecolabelling of textiles version 3, adopted 9 July 2009. The requirements that are harmonised with the EU's criteria are inserted in the Swan's criteria document in order to provide applicants with a better overview of which requirements shall actually be fulfilled. The EU Ecolabel's requirements were previously an attachment to the Swan's criteria document. All requirements that are harmonised with the EU Ecolabel's requirements can be documented with a valid EU Ecolabel licence.

The Swan sets some additional requirements in relation to those of the EU Ecolabel. The additional requirements are mainly requirements relating to cotton, as well as ethical requirements. In addition to the ecolabelling of textiles, the Swan has included hides/skins and leather in the criteria, since there has been an interest in this in the market. The EU Ecolabel does not have specific criteria for hides/skins and leather in the textile criteria, but does have criteria for shoes. The Swan has therefore been inspired by these requirements in the formulation of the requirements for hides/skins and leather.

6.1.1 The relationship to GOTS

During the revision work, it has been assessed whether individual requirements should be able to be documented with a GOTS certificate. It has been decided that organic cotton can be documented with a GOTS certificate, since GOTS is mainly an ecolabelling scheme for organic cotton, and GOTS certified organic cotton is available on the cotton exchange market. The Swan allows the labelling of many

types of fibres, and will therefore be a label that is more appropriate for many products on the market, particularly mixed products that consist of different types of fibres or organic and non-organic fibres of the same type, and products made from regenerated and synthetic fibres. It has therefore been decided that a harmonisation with the requirements in the GOTS standard will result in great limitations relating to which products can be labelled, and this is not desirable for the Swan.

Whether individual chemical requirements could be documented with a GOTS certificate has also been considered, but it has been decided not to allow this. GOTS has similarities to a type 1 ecolabel, but it is not stated whether GOTS follows the ISO 14024 standard for ecolabels, and GOTS is not a member of GEN (the Global Ecolabelling Network). The formulation of the requirements in the GOTS standard is different to the Swan's way of formulating requirements, and there is therefore uncertainty around whether the requirements are equivalent, and the standard does not state how the requirements shall be documented. If the Swan is to be based on other labelling schemes, it is important that the Swan can be entirely certain that the requirements are controlled in an adequate way.

6.2 Product group definition

Which products can be ecolabelled in accordance with the textiles criteria is stated in the product group definition. This has been changed somewhat from the previous version, and it has been clarified which products and materials that can be labelled. Generally, clothing products and furnishings products can be labelled, such as jackets, jumpers, trousers, shirts, underwear, curtains, towels, bedding, duvets and cushions. It is also clarified that textiles or hides/skins and leather for items such as car seats can be labelled. Accessories such as scarves, handbags and handkerchiefs are also included in the product group. Fibres, yarn and fabric that shall be used in textiles for clothing and furnishings can also be labelled.

It is specified in the product group definition that mineral fibres, glass fibre, coal fibre and other inorganic fibres cannot be ecolabelled or included in a Nordic Ecolabelled textile. This has not changed from the previous version of the criteria. Wall coverings, such as textile wallpapers, cannot be labelled. These are products that have a different function and other quality requirements than traditional textile products such as clothes, and are therefore not included in these criteria.

Advertising materials, banners and roll-ups cannot be labelled. These are often created of non-woven materials. They are often also single-use products, and Nordic Ecolabelling wants to mainly label products that can be used multiple times.

Nordic Ecolabelling has decided to include in the product definition that textiles or materials that are treated with flame retardant agents cannot be ecolabelled. This applies both to flame retardants that are integrated in the fibre (chemically bonded) and retardants that are not chemically bonded. The use of flame retardants is generally increasing in society, and this is not seen as a positive development. Halogenated flame retardants in particular can have serious effects on health and the environment. One of the most relevant groups of flame retardants are those which are brominated. The use of brominated flame retardants has significantly increased since the 1990s. The authorities in the Nordic countries and the EU have placed great focus on

brominated flame retardants and some are prohibited. The Norwegian authorities have placed brominated flame retardants on their priority list, where the goal is to stop emissions by 2020⁸⁵. It is questionable whether it necessary to use flame retardants in an increasingly greater proportion of textile products. For example, flame retardants are used on wool products, despite the fact that wool is not particularly flammable. Previously, very strict requirements were set regarding the use of flame retardants, which in practice resulted in it being difficult to label flame retardant textiles. The change in the product group definition will therefore not have particularly significant consequences for the types of products that can be labelled.

In order to make it clearer which products cannot be labelled in accordance with the textile criteria, but which can be included in another criteria document within Nordic Ecolabelling, a list of examples of relevant products has been created.

There has been uncertainty linked to whether cushions can be ecolabelled in accordance with the criteria for textiles or furniture, and whether carpets can be ecolabelled in accordance with the criteria for floors or textiles. This has now been clarified in that cushions that are a part of a piece of furniture, for example a sofa cushion, cannot be ecolabelled in accordance with the criteria for textiles. However, Nordic Ecolabelling has criteria for furniture, under which cushions that are a part of a piece of furniture can be labelled. Cushions intended for decoration or pillows can be labelled in accordance with the criteria for textiles. For carpets, it is clarified that wall-to-wall carpets are not included in the product group definition, but textile floorings are included in Nordic Ecolabelling's criteria for floors. Other types of carpets, such as rugs and mats, can be ecolabelled in accordance with the textiles criteria. It is also clarified that wall coverings, such as textile wallpapers, cannot be ecolabelled. Toys made of textiles, such as soft toys, cannot be ecolabelled in accordance with the textile criteria, but are covered by the criteria for toys.

For the labelling of fibres, yarn and fabric, a clarification has been made in relation to non-woven products. Nordic Ecolabelling does not wish to ecolabel single use non-woven products that cannot be washed and reused in accordance with the textiles criteria. Examples of such products are kitchen towel and cleaning cloths. It is not natural to label single use products in accordance with the textiles criteria, since they are aimed at durable, long-life products. In addition, Nordic Ecolabelling does not want to contribute to the increased consumption of single use products when products that can be used multiple times and which are regarded as better for the environment are available on the market. On the other hand, durable non-woven products, which can be reused and washed, can be ecolabelled in accordance with the textiles criteria. This is also in line with the EU Ecolabel's product group definition. Other single use products, such as cotton pads for personal care and surgical gowns are not covered by the criteria for textiles. These single use products can be labelled in accordance with other Nordic Ecolabelling criteria, such as the criteria for hygiene products.

⁸⁵ Miljøstatus i Norge: <http://www.miljostatus.no/Tema/Kjemikalier/Noen-farlige-kjemikalier/Bromerte-flammehemmere/>

Microfibre cloths have separate Nordic Ecolabelling criteria, and are therefore not included in the textiles criteria. The same applies for soft toys/toys. It is also clarified that shoes cannot be ecolabelled in accordance with these criteria, but that there are separate criteria for shoes within the EU Ecolabel's ecolabel.

Products made from hides/skins and leather can also be ecolabelled in accordance with the criteria for textiles. On this point, the Swan differs from the EU Ecolabel's criteria, under which hides/skins and leather cannot be labelled. In relation to the product group definition in version 3, the product group definition has been expanded to include that hides/skins and leather from reindeer (*Rangifer tarandus*), deer (*Cervus elaphus*) and elk (*Alces alces*) can also be ecolabelled. These species are not threatened, and used on a commercial scale alongside hides/skins and leather from domestic animals⁸⁶. In addition, the group of domestic animals has been expanded so that hides/skins and leather from horses can also be labelled together with those from pigs, goats, oxen and sheep.

The product group definition is as follows:

The criteria cover products made of textile fibres, hides/skins and leather, or a combination of these. Textiles, hides/skins and leather refers to

- Ready-to-wear clothing and accessories, such as trousers, shirts, jackets, underwear, handkerchiefs, scarves, bags and purses.
- Furnishing fabrics, i.e. textiles produced for use and interior decoration in the home or in cars/boats, such as hand towels, bedding, curtains, tablecloths, rugs, cushions, duvets and seat covers for cars.
- Fibres, yarn and yard fabric, including durable non-woven, which shall be used in textiles for clothing and accessories or in furnishing fabrics mentioned above. Durable non-woven refers to products that can be reused and washed.
- Hide and leather products such as jackets or trousers and hides/skins and leather as raw materials for clothing or home furnishings or for cars/boats from the following species of animal: sheep, goat, ox, horse, pig, elk, deer and reindeer.

The following products and materials cannot be ecolabelled in accordance with the textile criteria or be included in a Nordic Ecolabelled textile product:

- Mineral fibre, glass fibre, metal fibre, carbon fibre and other inorganic fibres
- Products or materials that are treated with flame retardants. This also applies to flame retardants that are integrated in the product or material.
- Wall coverings, such as textile wallpapers.
- Advertising materials, banners, roll-ups.
- Disposable products. Disposable products refer to products that cannot be washed/dry cleaned or reused.

⁸⁶ Personal communication with Åke Lindström, environment responsible at Tärnsjö garveri AB

Products that can be ecolabelled in accordance with other Nordic Ecolabelling criteria are not covered by the textile criteria. Examples of this are:

- Disposable products made from non-woven material that cannot be washed or reused, for example kitchen paper and cleaning cloths (criteria for soft paper)
- Disposable products such as cotton pads for personal care (criteria for hygiene products)
- Floor coverings, such as wall-to-wall carpets (criteria for flooring)
- Cushions that form a part of a piece of furniture, e.g. a sofa cushion (criteria for furniture and furnishings)
- Microfibre cloths (criteria for microfibre cloths)
- Toys/soft toys (criteria for toys)
- Shoes (included in the EU Ecolabel criteria for shoes)

6.3 Information about the product

In order to obtain an overview of the products that shall be ecolabelled and the production chain, requirements are set that the applicant provides information about the product, including the trade name, production site, an overview of production processes and sub-suppliers, and where the products shall be sold. The overview of the production process and sub-suppliers should preferably be provided in the form of a flow chart.

A separate requirement is also set where the product shall be described and the composition of the product stated. This is important in order to know whether the products meet the product group definition and to know which other requirements in the document must be fulfilled by the products.

The prerequisite for labelling is that the products consist of at least 90% weight textile fibres, hides/skins or leather, or a combination of these, for which requirements are set in the criteria. Since the criteria set requirements for the production and treatment of textile fibres, hides/skins and leather, it is important that the Swan product consists of these materials so that it can be communicated that the product has low impact on the environment. A high level has therefore been set for how much textile fibre or hides/skins and leather must be included in order for the products to be labelled. The reason that the limit is set at 90% weight is that other materials may also be included, such as cords, plastic parts, etc. So as not to prevent products that include such elements being labelled, a requirement of 100% textile fibre, hide and/or leather has not been set. See also exceptions and other limitations later in this section.

It is possible to ecolabel both individual garments, e.g. a sweater or a pair of trousers with a fixed composition of fibre types and other materials, or a collection consisting of various compositions of the approved materials, i.e. that different compositions of fibre types that fulfil the requirements can be combined in different quantities in the final products.

In order to make it possible to ecolabel duvets, cushions and down jackets, for example, filling materials such as down, feathers and corn are excluded from the

calculation of the proportion of textile fibres. Individual products, such as all weather jackets and rainwear, feature a coating in addition to the fibre. So that such products can be ecolabelled, this coating, membrane or laminate shall not be included in the calculation of the share of textile fibres, but can be included up to a maximum of 20% of the weight of the product. Such an exception has also been made for zips and buttons. These do not need to be included in the share of textile fibre, hides/skins and leather, but can be included up to a maximum of 15% of the total weight of the product. Note that requirements are set for coatings, membranes, laminates and metal parts such as buttons that are included in the product. Refer to the background for the individual requirements for a description of the environmental and health problems linked to these.

Sewing thread is also excluded from the calculation of the share of textile fibres. Note that Velcro is regarded as a textile fibre.

Textile fibres that requirements are not set for in the criteria document can be included up to a maximum of 5% of the total weight of the product. This limitation has been made since Nordic Ecolabelling wishes to be sure that an ecolabelled product mainly contains materials for which requirements have been set in the criteria.

An exception for sewing thread has also been introduced, so that it does not need to fulfil requirements or be included in the percentage of fibre, hides/skins and leather. Fibre types, hides/skins and leather for which requirements are set in the criteria are also excluded from the requirements if the fibre type, hide or leather is included at a total of 5% of the total weight. This means that for a product that consists of 95% cotton and 5% polyester, it is only the cotton that needs to fulfil the requirements in the criteria.

Recovered fibres are excluded from the fibre-specific requirements. Recovered fibres refer to fibres from excess materials from the textile and clothing industry or from waste. Waste refers, for example, to fibres produced from plastic bottles.

R1 Information about the product

The applicant shall provide the following information about the product:

1. Brand/trade name, possibly article number
2. Where the products shall be sold (store, web-shop, etc.)
3. An overview of the production process and sub-suppliers

The production process shall be described by providing the names and production locations of sub-suppliers, and describing which processes each sub-supplier carries out, e.g. washing, dyeing and printing.

It is recommended that a flow chart is used to illustrate the production process, for example as shown in Appendix 4.

Description in accordance with the requirement.

R2 Description and composition of the product

The product(s) that shall be ecolabelled shall be described. The description shall cover what types of fibres, or hides/skins and leather, are included, the percentage weight of the type of fibre/hide/leather, as well as other materials included in the product such as fillings, coatings, membranes, zips and buttons.

The product shall consist of a minimum of 90% by weight textile fibre, hide/leather, or a combination of these that are covered by the requirements in the criteria. The following materials shall not be included in the percentage of textile fibre/hide/leather:

- Down, feather, seed, corn or grain fillings
- Coatings, membranes or laminates
- Zips and buttons
- Sewing thread

Coatings, membranes and laminates can be included up to a total of 20% of the weight of the final product.

Zips and buttons can be included up to a total of 15% of the weight of the final product.

Sewing thread is excluded from the requirements in the remainder of this document and from the calculation of the composition of the product.

Fibre types or other materials for which requirements are not set in this document can be included up to a total of 5% of the weight of the product.

Fibre types, hides/skins and leather for which requirements are set in the criteria are excluded from the requirements if the fibre type/hide/leather together is included at less than 5% of the total weight.

Recovered fibres do not need to fulfil the requirements for the production of fibres. 'Recovered fibres' refers to fibres from excess materials from the textile and clothing industry or from waste. 'Waste' refers, for example, to fibres produced from plastic bottles.

☒ Description in accordance with the requirement.

6.4 Production of fibres

The Swan sets requirements for the production of both natural and synthetic fibres. For vegetable fibres, specific requirements are set for the cultivation of cotton and other cellulose seed fibres (see 6.4.1) as well as linen and other bast fibres (see 6.4.2). For animal fibres such as wool and other keratin fibres, requirements are set for the content of certain chemical substances, as well as COD emissions in the effluent (see 6.4.3).

For different types of synthetic fibres, requirements are set regarding the use of chemicals during production, as well as VOC emissions to the air (see 6.4.4).

For regenerated cellulose fibres, requirements are set regarding the content of chemicals, as well as emissions to air and water (see 6.4.5).

6.4.1 Cotton and other natural cellulose seed fibres

For cotton, Nordic Ecolabelling sets a requirement that at least 10% of the total weight of the cotton that is used in the Nordic Ecolabelled production on an annual basis shall be organically farmed or cultivated in transition to organic farming. Organic fibres shall be produced and controlled in accordance with European Council Regulation (EEC) no. 2092/91 of 24 June 1991 on the organic production of

agricultural products or equivalent systems, such as KRAV, SKAL, IFOAM, IMO, KBA, OCIA, TDA, DEMETER, etc. Beyond this, requirements are set for the rest of the cotton, in that it shall be tested for traces of pesticides. The requirement has been changed from the previous version of the criteria, where 100% of the cotton and other cellulose seed fibres should be organically farmed.

A market survey carried out by Nordic Ecolabelling and contact with licencees has shown that the requirement of 100% organically farmed cotton has been a significant challenge for individual market participants in ecolabelling products. Only 1.1% of the world's cotton production is organic⁸⁷. The production of organic cotton has increased by 40% each year in the last ten years, but the percentage is still so low that the availability is unstable. Another challenge that was mentioned in the market survey is varying quality, since the quality of organic cotton is significantly improved after it has been cultivated for 3-5 years. Nordic Ecolabelling has therefore chosen to suggest moving away from a 100% organically farmed cotton requirement, but wishes to stimulate the demand for organic cotton. Conventional cultivation of cotton can be extremely harmful to health and the environment, since many pesticides and other chemicals are used during farming⁸⁸. The use of pesticides or fertilisers is not permitted in organic farming. See Chapter 5.2.2 for more information about the environmental problems linked to the farming of cotton. By setting a requirement that at least 10% of the cotton must be produced organically, Nordic Ecolabelling can help to increase the demand for organic cotton and hopefully have a positive effect on the farming of cotton. At the same time, we hope that this can give the Swan greater success on the market, which will again be positive for both the demand for organic cotton, and which will reduce the environmental impact of the rest of the textile production.

In order to ensure that the share of organic cotton is a minimum of 10% of the total weight on an annual basis, a production plan shall be submitted, as well as routines that describe how it is ensured that this share is fulfilled. The plan shall contain a description of which parts of the production shall include organic cotton. This can for example be that all shirts in a Nordic Ecolabelled collection are created from organic cotton. In addition, the description shall show that the share of organic cotton in the production of Nordic Ecolabelled textiles fulfils the requirement of at least 10% weight organic cotton. This can for example be done by stating the kg of organic and conventional cotton that are purchased or planned to be purchased, and how this is used in the relevant garments. It is of course also possible to use a mix where the organic and conventional cotton fibres are spun together so that the share of organic cotton in the fibre is a minimum of 10%, when the entire production is mix quality. If

⁸⁷ Textile exchange, 2010 Farm and Fiber report, 2010,
http://farmhub.textileexchange.org/upload/library/Farm%20and%20fiber%20report/Farm_Fibre%20Report%202010%20Final_exec%20summary_web.pdf (accessed 6 Sept 2011)

⁸⁸ “The sustainability of cotton – consequences for man and environment”, Kooistra K., Termorshuizen A., Pyburn R., Wageningen University & Research Centre, report number 223, April 2006

the products/collection that shall be Nordic Ecolabelled are produced at several production sites/factories, the percentage of organic cotton can be calculated based on the total amount of organic and conventional cotton purchased for all the products/collection, so that the requirement does not need to be fulfilled per production site/factory. During the revision, it has been discussed whether a Nordic Ecolabelled textile must contain organic cotton, or whether only parts of the Nordic Ecolabelled production can be made of organic cotton. Nordic Ecolabelling believes that it is most important to stimulate the demand for organic cotton, and that it is therefore not important that every individual garment that is Nordic Ecolabelled contains organic cotton. It is therefore up to the producer to decide how to fulfil the requirement of at least 10% of the total weight in organic cotton.

It is also important that the licensee ensures that the requirement regarding the share of organic cotton is fulfilled in the period after the licence is awarded. A requirement is therefore set that annual reports must be submitted to Nordic Ecolabelling, which show that the requirement of at least 10% of the total weight in organic cotton is fulfilled by stating the quantity of organic cotton (kg) and the quantity of conventional cotton (kg) that is purchased and used on an annual basis.

For cotton that is conventionally farmed, and for other cellulose seed fibres, requirements are set for the testing of traces of pesticides. Tests for a range of harmful pesticides shall be carried out, and each individual substance may be included in the cotton to a maximum of 0.05 ppm. The raw cotton shall be tested before wet treatment, and every batch of cotton that the producer receives shall be tested. By having such a requirement, Nordic Ecolabelling will ensure that the cotton that is included in Nordic Ecolabelled textiles is not farmed using the substances that are most harmful to health and the environment. The requirement regarding the testing of traces of pesticides is identical to the EU Ecolabel's requirement, with the exception that the Swan sets a requirement that every batch of cotton that is received shall be tested. In order to document the requirement, test reports shall be submitted in accordance with one of the following testing methods:

- US EPA 8081 A (organic chlorine pesticides with ultrasound) or Soxhlet extraction and non-polar solvents (isooctane or hexane)
- 8151 A (chlorinated herbicides with the use of methanol)
- 8141 A (organic phosphorous compounds) or
- 8270 C (partially volatile organic compounds)

It has been considered whether to set requirements regarding the prohibition of the use of genetically modified (GM) cotton. There is great uncertainty linked to the environmental effects of genetically modified plants. There are questions relating to whether the use of chemical sprays will be reduced through the use of GMO, as GMO supporters claim. There are also various social and ethical problems related to GMO production⁸⁹.

⁸⁹ "Genetically modified organisms – a summary of potential adverse effects relevant to sustainable development", 2011

⁹⁰ "Skitne klær – En vurdering av miljø og arbeidsforhold ved produksjon og bruk, og sammenligning av leverandører", December 2008, Forum for Utvikling og miljø.

⁹¹ <http://www.en.wikipedia.org/wiki/cotton> (accessed 25.01.2012)

Nordic Ecolabelling has wished to set a prohibition against GM cotton, but cannot see that this is steerable at this point in time. According to the report “Skitne klær – En vurdering av miljø og arbeidsforhold ved produksjon og bruk og sammenligning av leverandører”,⁹⁰ the share of genetically modified cotton on the world market was approx. 30 per cent in 2008, but this is estimated to increase and is probably higher today. According to Wikipedia⁹¹ and GMO Compass,⁹² genetically modified cotton is farmed globally on 49% of the total area that is used for the cultivation of cotton. It is improbable that conventional cotton can be distinguished from genetically modified cotton on the cotton stock market. Setting a requirement that genetically modified cotton cannot be included would require traceability back to the farmer, something that is thought to be improbable when the cotton is not farmed organically. Nordic Ecolabelling finds it difficult to see what kind of documentation that would be reliable and possible to obtain in order to prevent the use of GM cotton. Nordic Ecolabelling has therefore chosen not to introduce such a prohibition, since we see that the steerability of such a requirement is poor. This will however be reassessed in later revisions of the criteria.

Nordic Ecolabelling would like to receive comments on the suggested requirements for cotton in particular.

R3 Cotton and other natural cellulose seed fibres

Organic percentage

At least 10% of the weight of the cotton that is used in the production of ecolabelled textiles shall be organically farmed or farmed during a transition to organic farming. The percentage shall be calculated in kg of organic cotton per total purchased kg cotton for the ecolabelled production on an annual basis.

A production plan and procedures which show how the share of at least 10% of the weight in organic cotton is fulfilled shall be submitted.

Each year, information must be submitted to Nordic Ecolabelling which shows that the requirement of at least 10% of the weight in organic cotton is fulfilled by stating the quantity of organic cotton (kg) and the quantity of conventional cotton (kg) that is purchased and used in the ecolabelled production on an annual basis.

If the products/collection that shall be ecolabelled are produced at several production sites/factories, the percentage of organic cotton can be calculated based on the total amount of organic and conventional cotton purchased for all the ecolabelled products/collection, so that the requirement does not need to be fulfilled per production site/factory.

Organic cotton is cotton that is farmed in accordance with the European Council Regulation (EEC) no. 2092/91 of 24 June 1991 on the organic production of agricultural products, or

⁹² http://www.gmo-compass.org/eng/agri_biotechnology/gmo_planting/343.genetically_modified_cotton_global_area_under_cultivation.html (accessed 25.01.2012)

products produced in the same way and under equivalent control measures. Examples are: KRAV, SKAL, IFOAM, IMO, KBA, OCIA, TDA, DEMETER.

Conventional percentage

The conventionally farmed cotton and other natural cellulose seed fibres, including kapok, may contain a maximum of 0.05 ppm of each of the following substances: aldrin, captafol, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, hexachlorocyclohexane (total isomers), 2,4,5-T, chlordimeform, chlorobenzilate, dinoseb and its salts, monocrotophos, pentachlorophenol, toxaphene, methamidophos, methylparathion, parathion and phosphamidon.

The tests shall be carried out on raw cotton, i.e. before wet treatment, on each batch of cotton that is received.

The tests shall be in accordance with test reports for the most relevant testing method of the following:

- US EPA 8081 A (organic-chlorine pesticides with ultrasound) or Soxhlet extraction and non-polar solvents (iso-octane or hexane)) or
- 8151 A (chlorinated herbicides with the use of methanol) or
- 8141 A (organophosphorous compounds) or
- 8270 C (semi-volatile organic compounds).

If the traceability of the cotton can be documented back to the individual farms for at least 75% of the utilised cotton, and the farms can confirm that the aforementioned substances are not used during the farming of the cotton, it is not necessary to submit test reports.

- ☒ For the organic percentage: state the supplier of the organic cotton, including the name and address. Valid certificate that shows that the cotton is organically farmed in accordance with European Council Regulation (EEC) no. 2092/91 of 24 June 1991 on the organic production of agricultural products or equivalent systems. Valid GOTS-certificate in accordance with version 3.0 or later versions can also be used to document that the cotton is organically farmed.

Production plan and procedures, as well as calculations that show how the requirement regarding the percentage of organic cotton is fulfilled. Procedures for annual reporting on the share of organic cotton.

For conventional cotton and other cellulose seed fibres: Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports that show that the requirement is fulfilled or declaration from the farmers that the substances in the requirement have not been applied to the fields or cotton plants, and an overview of the share of cotton that this applies to.

6.4.2 Linen and other bast fibres (hemp, jute and ramie)

The requirement is changed since the previous version of the criteria. Previously, a requirement was set that vegetable fibres, such as linen, hemp, ramie and jute should be organically farmed. This was an additional requirement in the Swan's criteria in relation to the EU Ecolabel. Now, requirements are set equivalent to the EU Ecolabel. Water retting is prohibited unless the effluent is purified in order to reduce the organic material content. Retting is necessary in order to divide the fibres in the stem from the shell/bark, and is done by exposing the stem or other bast fibre to damp and heat⁹³.

⁹³ Haldis Hauland solås, Tekstiler og klær – fremstilling-behandling-miljøbevisshet, Portal forlag, 2009

Water retting is the most effective method, but there are other methods such as placing the fibres in tanks and adding enzymes. Effluent emissions from water retting with a high content of organic material to the aquatic environment can result in a lack of oxygen as they break down, and therefore damage the aquatic animal and plant life.

There are two main reasons that this requirement has been changed. The first is that the farming of these fibres generally has little effect on the environment. They are seldom subject to attack by pests, and there is little need for pesticide sprays. In addition, the fibres require few nutrients. Another reason is that there is hardly any organic production of these fibres. Nordic Ecolabelling has been in contact with Helvetas (a Swiss NGO that works with organic fibres, among other things). According to them, there is some organically farmed linen, particularly from the Baltic, but presumably not certified as organic in accordance with the standards required by Nordic Ecolabelling.

R4 Flax and other bast fibres

Production of flax and other bast fibres using water retting is only allowed if the effluent from the water retting is cleaned so that the chemical oxygen demand (COD) or the total organic carbon (TOC) is reduced by at least 75% for hemp fibre and at least 95% for flax and other bast fibres.

The COD content shall be measured in accordance with testing method ISO 6060 or the equivalent.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports from the flax/bast fibre producer that shows that the requirement is fulfilled if water retting is used.

6.4.3 Unprocessed wool and other keratin fibres

The requirement is not changed from version 2 of the EU Ecolabel's criteria. In order to avoid parasites in the wool, the animals can be exposed to harmful chemicals such as organophosphates and pyrethroids. In order to prevent the animals being exposed to a range of problematic substances, a requirement is set that test reports shall be submitted in accordance with IWTO Draft Test Method 59 or the equivalent. The levels that are permitted in the requirement are so low that if these substances are used they will be over the limit, and in practice these substances are therefore prohibited for use in wool that shall be approved for a Nordic Ecolabel. The requirement can also be documented through traceability back to the farmers for at least 75% of the weight of the wool or keratin fibres, and a confirmation from these that the substances are not used. Since the requirement is equivalent to the EU Ecolabel's requirement, it can also be documented with a valid EU Ecolabel licence.

Whether a requirement shall be set that the wool must be organically produced has also been evaluated. It is possible to obtain organically produced wool, but the market is very small. Contact with the industry⁹⁴ shows that organic wool is difficult to

⁹⁴ Personal communication: JOHA: Ingemette Jakobsen, Gabriel: Kurt Nedergaard (QEP) and Neutral.com: Christina E. Larsen.

⁹⁵ <http://www.naturalfibres2009.org/en/fibres/wool.html>

obtain. The total wool production is estimated to be approx. 2.1 million tonnes⁹⁵, and Australia is the largest producer with approx. 25%⁹⁶. In Australia, approx. 1% of the wool production is organic⁹⁷. Nordic Ecolabelling has not been able to obtain a more accurate figure regarding how much of the world's total wool production is organic, but based on these figures, it can be said that access to organic wool is limited. Nordic Ecolabelling has therefore chosen not to set a requirement that the wool must be organic, since the availability on the market is small, and the steerability and potential are low.

R5 Wool and other keratin fibres (wool from sheep, camel, alpaca and goat)

The total content of the following substances must not exceed 0.5 ppm: γ -hexachlorocyclohexane (lindane), α -hexachlorocyclohexane, β -hexachlorocyclohexane, δ -hexachlorocyclohexane, aldrin, dieldrin, endrin, p,p'-DDT and p,p'-DDD, cypermethrin, deltamethrin, fenvalerate, cyhalothrin and flumethrin.

The total content of the following substances must not exceed 2 ppm: diazinon, propetamphos, chlorfenvinphos, dichlorfenthion, chlorpyrifos, fenchlorphos, diflubenzuron and triflumuron.

The analysis shall be carried out on raw wool before wet treatment for each batch of wool that is received.

The tests shall be in accordance with IWTO Draft Test Method 59 or the equivalent.

The requirement does not apply if the applicant can document which farmers have produced at least 75% of the weight of the wool or keratin fibres, and that the farmers can confirm that the substances mentioned in the criteria are not used in the relevant areas or on animals.

The requirement does not apply if the wool is organically certified. For the definition of 'organic', see R3.

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports that show that the requirement is fulfilled, or declaration from the farmers that the stated substances are not used, as well as an overview of the percentage of wool that this applies to or a valid certificate which shows that the wool is organic in accordance with European Council Regulation (EEC) no. 2092/91 of 24 June 1991 on the organic production of agricultural products or equivalent systems.

⁹⁶ <http://en.wikipedia.org/wiki/Wool> (accessed 15 Sept 2011)

⁹⁷ http://www.treehugger.com/files/2007/09/organic_wool_th.php (accessed 15 Sept 2011)

COD, pH and temperature of the effluent

The requirement is changed from version 2 of the EU Ecolabel's criteria. Wool contains a lot of fats, such as lanolin, and when the wool is washed these substances end up in the effluent. The effluent can contain large quantities of substances that use oxygen when breaking down. When effluent with a high COD content (chemical oxygen demand) is released into the aquatic environment, the breaking down of these substances can result in a lack of oxygen in the water and damage animal and plant life. A requirement is therefore set that the COD content of the effluent shall be a maximum of 20g/kg unprocessed wool. Several wool washing plants have closed in recent years, and Nordic Ecolabelling is unsure of the suggested requirement level. We would therefore like input regarding the formulation of this requirement and the suggested limit.

In addition to COD emissions, the pH and temperature of the effluent shall be measured. In order to document the requirement, test reports for the COD content in accordance with ISO 6060 shall be submitted. The requirement can be documented by COD emissions on an annual basis. Reports that show the measurement of pH and temperature of the effluent shall also be submitted. This part of the requirement can also be documented with a valid EU Ecolabel licence.

R6 COD, pH and temperature of the effluent

COD emissions in scouring effluent that does not go to municipal or other external purification plants may be a total of 20 g/kg unprocessed wool.

The COD content shall be tested in accordance with ISO 6060 or the equivalent.

The report shall contain a calculation which shows the COD emissions in g per kg of unprocessed wool that is washed. The requirement can be documented by COD emissions on an annual basis.

The wool washing plant shall describe how the effluent from the washing is treated, and show how COD emissions are monitored.

The pH value of the effluent that is released into surface water shall be 6-9 (unless the pH value in the recipient lies outside of this interval), and the temperature shall be below 40°C (unless the temperature in the recipient is higher).

- ☒ For COD: Test report from the wool washing plant which shows that the requirement is fulfilled. For pH and temperature: Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or reports from the wool washing plant that include measurements of pH and temperature in the effluent.

6.4.4 Synthetic fibres

The Swan currently has the same requirements for synthetic textile fibres as the EU Ecolabel. Requirements are set for the production of acrylic, elastane, polyamide, polyester and polypropylene.

Nordic Ecolabelling has chosen not to report on and set requirements for other synthetic polymers such as PLA, since these are currently used to a very limited extent. Note that fibre types for which requirements are not set in the criteria can be included to a total of 5% of the total weight of the product.

Acrylic

Acrylic fibres are produced through the polymerisation of acrylonitrile (at least 85%) with a comonomer (max. 15%). Acrylonitrile is relatively toxic, LC50 (Daphnia) = 7,6 mg/l, and is classified as carcinogenic.⁹⁸ Nordic Ecolabelling does therefore not set requirements for the other monomers in the polymer, and for emissions of acrylonitrile in the process.

Toxic solvents are also used during spinning – dimethylformamide or dimethylacetamide. No good alternatives exist for these solvents, and the EU Ecolabel's background document from 1998¹⁰ concludes that neither of these solvents is better than the other. Both are toxic and must be handled with care. Due to the lack of potential and steerability, Nordic Ecolabelling therefore does not set requirements regarding the use of solvents in the spinning of acrylic fibres.

R7 Acrylic

The residual of acrylonitrile content in raw fibres from the fibre production plant shall be less than 1.5 mg/kg. The amount of acrylonitrile shall be measured using the following method of analysis: Extraction with boiling water and quantification with capillary gas-liquid chromatography.

Emissions of acrylonitrile to the air (during polymerisation and until the solution is ready for spinning) shall be less than 1g/kg produced fibre, expressed as an annual average.

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or an analysis report from the acrylic producer that shows that the requirement is fulfilled. For emissions to the air, the applicant shall attach documentation and/or test reports, as well as a declaration that the requirement is fulfilled.

Elastane

Elastane is a polyurethane elastomer. It is not used as a textile fibre alone, but is incorporated in other textiles in order to make them elastic. Either special amines or organic tin compounds can be used as catalysts in the polymerisation⁹⁹. Organic tin compounds are very poisonous, both for humans and animals¹⁰⁰, and a requirement is set that organic tin compounds shall not be used. The requirement shall be documented with a statement that organic tin compounds are not used, or an EU Ecolabel licence.

⁹⁸ EU Ecolabel background report; "Establishment of ecological criteria for textile products", final report April 1998

⁹⁹ EU Ecolabel background report; "Establishment of ecological criteria for textile products", final report April 1998

¹⁰⁰ <http://www.miljostatus.no/tema/Kjemikalier/Noen-farlige-kjemikalier/TBT/> (accessed 18.11.2011)

Requirements are also set for emissions of aromatic diisocyanates in the polymerisation and spinning. These compounds can cause allergic reactions in the eyes, lungs and skin in the event of emissions to the air¹¹. The requirement shall be documented through test reports and/or detailed information that shows that emissions of aromatic diisocyanates do not exceed 5 mg/kg produced fibre, or with a valid EU Ecolabel licence.

R8 Elastane

Organotin compounds shall not be used.

Emissions to the air of aromatic diisocyanates during polymerisation and spinning shall be less than 5 mg/kg produced fibre, expressed as an annual average.

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or declaration from the elastane producer that organotin compounds are not used. Detailed information and/or analysis reports from the elastane producer that show that the requirement is fulfilled.

Polyamide

The two commercial polyamide products are polyamide 6.6 and polyamide 6. Polyamide 6.6 is created through the polymerisation of adipic acid and hexamethylenediamine, while polyamide 6 (Nylon 6) is created through the polymerisation of melted ϵ -caprolactam.

We currently only have requirements for emissions of nitrous gases (N_2O) during the production of monomers for polyamide production. In the first version of our requirements, we had an additional requirement that the fibre should be produced through melt spinning without the use of solvents, as well as a requirement for a management plan to control VOC emissions from the fibre production. These requirements were omitted when we harmonised the Swan's requirements with those of the EU Ecolabel. The BAT report cites melt spinning as the preferred method for polyamide production, so it is not relevant to set a requirement that the fibre production shall be produced using this method¹⁰¹.

R9 Polyamide

Emissions of nitrogen dioxide (N_2O) to the air from the production of monomers must not exceed 10 g/kg produced polyamide 6 fibre, and 50 g/kg produced polyamide 6.6 fibre, expressed as an annual average.

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or detailed information and/or test reports from the polyamide producer that show that the requirement is fulfilled.

¹⁰¹ BAT 2003

Polyester

Polyester is a synthetic polymer made of terephthalic acid or dimethyl terephthalate and monoethylene glycol, with the use of an antimony catalyst. These are raw materials that are easily available from the cracking of crude oil. The raw materials are therefore not from renewable sources, but regarded as not very toxic and easily accessible chemicals. The fibre production results in no dangerous by-products and is carried out in a closed process that results in low emissions¹⁰². The fibre production is energy-intensive, but the water consumption is very low. The majority of polyester production takes place in Asia, and is particularly concentrated in large factories in China, but there are also producers in the EU, for example in France and Germany.

We currently have requirements regarding traces of the antimony catalyst in polyester, since antimony is a toxic substance. In addition, there are requirements for VOC emissions during polymerisation. Polyester usually contains antimony in concentrations of 150-350 ppm (mg/kg)¹⁰³. Further requirements could be linked to energy consumption, but we have been unable to find detailed information about how much energy is used during the fibre production. Average figures for energy consumption, which are stated in Plastic Europe's database, are not enough for the Swan, since we need information at factory level in order to be able to set an energy requirement which distinguishes the best factories in terms of energy consumption.

R10 Polyester

The amount of antimony in the polyester fibre shall not exceed 260 ppm.

Antimony shall be tested using the following method: Direct determination by atomic absorption spectrometry. The test shall be executed on raw fibre prior to any wet treatment.

VOC emissions during polymerisation and fibre production, measured in the process steps where this occurs, including diffuse emissions, must not exceed 1.2 g/kg produced polyester resin, expressed as an annual average.

VOC are defined as organic compounds that have a vapour pressure of 0.01 kPa or higher at 293.15 K or an equivalent volatility under the conditions of use.

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or confirmation from the polyester producer that antimony is not used, or a test report which shows that the antimony requirement is fulfilled. For VOC emissions, detailed information and/or test reports shall be submitted, as well as a declaration from the polyester producer that the requirement is fulfilled.

Polypropylene

Polypropylene is used a lot in the production of carpets, but can also be used in other types of products. The production process consists of the polymerisation of propene with the help of a catalyst. The polymer is melted and the fibre is created through

¹⁰² Wikipedia

¹⁰³ Miljøstyrelsen, Miljøprojekt nr. 892, 2004, Antimon - forbrug, spredning og risiko

extrusion. This is an extremely simple process which results in few environmental problems.

Inorganic pigments can be used to dye the fibre the correct colour. The use of lead based pigments is therefore prohibited in the production of polypropylene. Nordic Ecolabelling is unsure of how relevant this requirement is, and would therefore like comments on this requirement in particular.

R11 Polypropylene

Lead-based pigments shall not be used.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or declaration from the polypropylene producer that lead-based pigments are not used.

6.4.5 Regenerated cellulose fibres

The requirements for the production of regenerated cellulose fibres limit the emissions of harmful chemicals to the air and water, and set requirements for the use of raw materials that are legally harvested and which do not come from protected areas.

Bleaching with chlorine gas

The cellulose mass shall not be bleached using chlorine gas. This is not currently used in Europe, but the use of chlorine gas has not stopped in all parts of the world. Chlorine gas is an effective bleaching agent, but gives great emissions of chlororganic compounds. There are good alternative bleaching methods for cellulose masses. In the previous version of the criteria, there was a requirement regarding the content of AOX in the fibres, and this was equivalent to the requirement in the EU Ecolabel's criteria. This has been removed and replaced with this requirement. The previous requirement regarding AOX in the fibres is not regarded as relevant, since it is emissions of AOX in the effluent that is problematic. Setting requirements that chlorine bleaching is forbidden will reduce AOX emissions. However, it is accepted that the requirement can be documented with a valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, since the EU Ecolabel's requirement in practice means that bleaching with chlorine gas is prohibited.

R12 Bleaching with chlorine gas

Chlorine gas must not be used in the bleaching of the cellulose mass or cellulose fibres.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a declaration from the cellulose mass and regenerated cellulose producer that the requirement is fulfilled.

Sulphur, zinc and copper emissions

The production of viscose results in emissions of both sulphur (S) and zinc (Zn). In the production of cupro fibre, copper emissions are a problem. Therefore, in order to limit these emissions, requirements are set for the emissions of these substances. The

requirements are unchanged and are harmonised with the EU Ecolabel's criteria from 2009.

R13 Viscose, sulphur emissions

Emissions of sulphur compounds to the air shall not exceed 120 g S/kg filament fibre and 30 g/kg staple fibre produced, expressed as an annual average.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports from the viscose producer that shows that the requirement is fulfilled.

R14 Viscose, zinc emissions

Zinc emissions to water shall not exceed 0.3 g Zn/kg regenerated cellulose, expressed as an annual average.

Information about testing, analysis methods and analysis laboratories is given in Appendix 2.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports from the viscose producer that show that the requirement is fulfilled.

R15 Cupro fibre, copper emissions

The copper content of the effluent from the plant that produces cupro fibre shall not exceed 0.1 ppm, expressed as an annual average.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a test report from the cupro fibre producer that shows that the requirement is fulfilled.

Traceability of raw materials

The raw materials for regenerated cellulose fibres, such as viscose, are mainly wood pulp (cellulose) and waste from the cotton plant, but can also be bamboo. In the event of the use of wood or bamboo in products, it is therefore relevant to look at whether the extraction of the raw materials does not come from protected areas or areas where there are unclear rights of ownership or use. In addition, it is important that the raw materials come from legal sources. The requirement is new in this version of the criteria.

R16 Traceability of raw materials

The producer of the regenerated fibre shall:

1. State the names (in Latin and one Nordic language), as well as the geographical origin (country/state and region/province) of the raw materials that are used. Appendix 5 can be used.
2. Be able to document traceability of the raw materials
3. Have a written procedure/routine for the procurement of raw materials, which ensures that the raw materials come from legal sources. The raw materials must not come from:
 - Protected areas or areas that are being considered for conversion to protected areas

- Areas with unclear ownership or usage rights
 - Illegally produced raw materials
- The names (in Latin and one Nordic language), as well as the geographical origin (country/state and region/province) of the raw materials that are used. Appendix 5 can be used.
- The traceability system must be described. A traceability certificate (Chain of Custody certificate) can be used to document point 2.
- Written procedures/routines that ensure the procurement of legal raw materials. The procedure/routine shall contain updated lists of all raw material suppliers. Appendix 5 can be used.

6.5 Production of hides/skins and leather

Nordic Ecolabelling also wants products made from hides/skins and leather to be able to be ecolabelled, and requirements are therefore set for relevant environmental problems in the production of hides/skins and leather. Tanning is a central process in the production.

Chromium

The most usual way of tanning hides/skins is to use chromium salt. During tanning, trivalent chromium (CrIII) can be transformed into hexavalent chromium (CrVI). Chromium (VI) is allergenic, carcinogenic, and extremely toxic to aquatic life, and it is therefore not desirable to have chromium (VI) in Nordic Ecolabelled products. The requirement is that chromium (VI) must not be found in hides/skins and leather. The requirement is not changed, but the testing method for documenting the requirement is new. The requirement shall be documented by a test report in accordance with EN ISO 17075:2007 or the equivalent, where 3 ppm is the detection limit. This method measures extractable chromium VI and not the actual content, but this is the most common method for analysing chromium (VI) in leather.¹⁰⁴ The previous method, CEN/ITS 149495 could create problems due to interference from dyes and other chemicals in the leather during the analysis.

R17 Chromium (VI)

Chromium (VI) shall not be found in finally treated hides/skins or leather.

The chromium content shall be tested in accordance with EN ISO 17075:2007 (detection limit 3 ppm) or equivalent.

- Test report from the tannery that shows that the requirement is fulfilled.

Heavy metals

Heavy metals such as cadmium and lead can also be found in hides/skins and leather. Lead occurs most often due to contaminants in the chromate during chromium tanning. The requirement is changed, since the previous requirement was also a prohibition against arsenic content. Arsenic is no longer relevant according to contact

¹⁰⁴ Anders Blom, Swerea, personal communication 13.12.2011

with the industry¹⁰⁵. The testing methods for documenting the requirement have also been updated.

R18 Cadmium and lead

Cadmium and lead shall not be found in finally treated hides/skins or leather.

The cadmium and lead content shall be tested in accordance with the AAS, ICP-OES or ICP-MS testing methods (detection limit 10 ppm).

- Test report from the tannery that shows that the requirement is fulfilled.

6.6 Filling materials

The chapter about filling materials covers both synthetic and natural filling materials. Filling materials include down, feathers, seeds, corn, grain, and various textile fibres. These can be used, for example, in duvets, cushions and jackets.

Filling material comprised of textile fibres shall fulfil the relevant requirements described in Chapter 6.4 for the specific fibre types. In addition, they shall fulfil other relevant requirements in Chapter 6.5.

Filling materials comprised of textile fibres for which requirements are not set in Chapter 6.4 can be included to a total of 5% of the total weight of the product.

R19 Filling materials

Filling materials that consist of textile fibres shall fulfil the relevant criteria for textile fibres in R3-R16.

Detergents and other chemicals that are used to wash filling materials (down and feathers as well as natural and synthetic fibres) shall fulfil R28 regarding forbidden substances and R32 regarding the biodegradability of detergents, fabric softeners and complexing agents.

Filling materials shall fulfil R30 regarding biocidal products and antibacterial substances.

Filling materials shall fulfil R60 regarding formaldehyde.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or equivalent documentation as specified in the requirements referred to.

6.7 Metal parts – heavy metals

In reports, there is often information about an undesirably high content of metals such as lead in metal parts for clothing and accessories. This can result in a risk of undesirable spreading or concentration of harmful metals in the environment, as well as result in exposure that is hazardous to health for consumers.

¹⁰⁵ Stefan Rydin, Nordeconsult, pers kom. mars 2012

In a test of children's rainwear carried out by the magazine "Foreldre og barn", lead was found in the buttons of 6 of 13 products¹⁰⁶. There are no EU regulations regarding the content of lead in such products, but whether rules for the lead content of jewellery should be introduced is currently under discussion. It is however unclear whether this regulation could also apply to buttons for clothes.

In an article on the Norwegian authorities' website, erdetfarlig.no¹⁰⁷, Bergans states that customers often ask about the nickel content in buttons and zips. The nickel content of items such as buttons and zips is regulated in EU directive 94/27/EØF¹⁰⁸. Astma og Allergiforbundet in Denmark writes that Nickel is the most frequent cause of contact allergies in Denmark, despite the EU directive¹⁰⁹.

Nordic Ecolabelling has therefore introduced requirements which prohibit the content of lead, cadmium and nickel in metal parts such as buttons and fasteners that are included at more than 1% of the total weight of the final product.

R20 Lead, cadmium and nickel content of buttons, buckles and other metal parts

Metal parts shall not contain lead (Pb), cadmium (Cd) or nickel (Ni). The requirement applies if the metal parts constitute more than 1% of the weight of the product. The lead, cadmium and nickel content shall be tested in accordance with the AAS, ICP-OES or ICP-MS testing methods (detection limit 3 ppm).

- Test report from the metal parts producer which shows that the requirement is fulfilled.

6.8 Coatings, laminates and membranes

Coatings, laminates and membranes shall fulfil relevant material requirements in Chapter 6.4. In addition, requirements are set for other materials such as PVC, and requirements for the use of chemicals that are harmful to health and the environment in the production of the coatings, laminates and membranes. The requirements R21, R22 and R24 are unchanged and are harmonised with the EU Ecolabel's criteria from 2009. The requirement which prohibits PVC and fluorinated polymers and VOC emissions is new. The prohibition of PVC and fluorinated polymers is specific to the

¹⁰⁶ <http://www.dagbladet.no/2011/06/30/tema/klikk/helse/17146626/> (accessed 25.01.1012)

¹⁰⁶ <http://www.erdetfarlig.no/Artikler/Nyhetsartikler/Bruk-makten-din-nar-du-handler/> (accessed 25.01.1012)

¹⁰⁷ <http://www.klif.no/publikasjoner/kjemikalier/1902/ta1902.html> (accessed 25.01.1012)

¹⁰⁸ <http://eksem.astma-allergi.dk/kontakteksem/allergiskkontakteksem/nikkel> (accessed 25.01.1012)

Swan, while the requirement regarding VOC emissions is harmonised with the EU Ecolabel's criteria from 2009.

The two main coating products on the market are vinyl products and polyurethane. It is not desirable to label textile products that consist of PVC (polyvinyl chloride). PVC is used in rainwear, among other things. PVC can contain phthalates which are harmful to health, and since they are not chemically bonded to the plastic, they can leak out of the products¹¹⁰.

Fluorinated polymers are often used as coatings, laminates and membranes in order to achieve a product with breathable qualities and which at the same time is also water repellent. These can take the form of a coating, as in rainwear, impregnation, such as in shell jackets, or as a laminate or membrane in all weather jackets, for example. The compounds within this group that have been investigated have environmentally harmful qualities, and do not meet the EU Ecolabel's requirements from 2009. However, we suggest that this should be clarified further by introducing a new requirement against fluoropolymers in coatings, laminates and membranes in R23.

In order to make clear what is a coating, laminate or membrane, the following definitions have been introduced:

Coating: a textile is covered by a resin which is transformed into a coating film

Laminate: a film or foam that is adhered to the textile with the use of glue (can be several layers)

Membrane: is an example of a laminate with a breathing, synthetic film, but these can also take the form of a coating that is added between the external fabric and lining in all weather jackets, for example.

R21 Polyurethane

Products made of polyurethane shall fulfil R8 regarding organotin compounds and emissions of aromatic diisocyanates.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or equivalent documentation as specified in the requirements referred to.

R22 Polyester

Products made of polyester shall fulfil R10 regarding antimony and VOC emissions on polymerisation.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or equivalent documentation as specified in the requirements referred to.

R23 PVC and fluorinated polymers

PVC coatings, laminates or membranes are not permitted.

Coatings, laminates or membranes coated with or based on fluorinated organic compounds are not permitted.

¹¹⁰ Miljøstatus i Norge: <http://www.miljostatus.no/no/Tema/Kjemikalier/Noen-farlige-kjemikalier/Ftalater/> (accessed 4 Dec 2011)

- A declaration from the applicant that PVC is not used and a declaration from the producer of the coating, laminate or membrane that fluorinated organic compounds are not included.

R24 Plasticisers or solvents

Coatings, laminates and membranes must not be produced using plasticisers or solvents that are or may be classified in accordance to the risk phrases in Table 2.

Table 2: Classification of plasticisers and solvents

Classification	Hazard symbols and risk phrases according to Directive 67/548/EEC*	CLP-regulation 1272/2008*
Environmental hazard	N with R50, R50/53, R51/53, 52/53 and/or R53	Category Acute 1 with H400, category Chronic 1 with H410, category Chronic 2 with H411, category chronic 3 with H412 and/or category chronic 4 with H413
Carcinogenic	T with R45 or R49 Or Xn with R40	Carc 1A/1B/2 with H350, H350i and/or H351
Mutagenic	T with R46 or Xn with R68	Mut 1B/2 with H340 and/or H341
Toxic for reproduction	T with R60 and/or R61. Or Xn with R62 and/or R63.	Repr 1A/1B/2 with H360F,, H360D, H361f and/or H361d

** The classification applies in accordance with EU substance directive 67/548/EEC with later changes and adjustments, and/or CLP regulation 1272/2008 with later changes. In the transfer period, i.e until 1 June 2015, classification in accordance with the EU substance directive or the CLP regulation can be used. After the transfer period, only classification in accordance with the CLP regulation will apply. A list of R sentences is given in appendix 3. Please note that the producer is responsible for correct classification.*

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a declaration from the coating/membrane/laminate producer that emollients or solvents with the given classifications are not used.

R25 VOC emissions

Emissions of VOC to the air from the coating or laminating process must not exceed 10 g C/kg.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009 or declaration and documentation and test reports from the coating or laminate producer that show that the requirement is fulfilled.

6.9 Chemicals

Following the production of the fibre, the fibre can go through several processes, such as dyeing, washing, spinning, weaving, shrinking and impregnation. Chemicals that are harmful to health and the environment can be used in these processes, and Nordic Ecolabelling therefore sets requirements for the chemicals that are used in these processes. The requirements are divided into general chemical requirements that apply to all textile products, including yarn and fabric. In addition, specific requirements are set for individual products, such as yarn and yard fabric.

6.9.1 Textile chemicals

The requirements in this chapter are requirements that apply for all types of textile products, including yarn, fabric and final products. The requirements cover chemicals that are used in spinning, weaving, wet processes (washing, bleaching and dyeing) as well as printing.

Overview of chemicals

In order to obtain an overview of the chemicals that are used in the various processes after fibre production, a requirement is set that an overview of the chemicals used shall be submitted.

R26 Overview of chemicals

An overview of all chemicals that are used in the various processes following production of the fibre and which are stated in R1, such as spinning, weaving, dyeing, and finishing, shall be submitted.

- Overview of chemicals and safety data sheets for the various processes.

REACH's candidate list

The requirement is new in this version of the criteria. The substances on REACH's candidate list are very problematic substances, and can be carcinogenic and harmful to the environment. Nordic Ecolabelling regards it as important to ensure that no substances on this list are used in Nordic Ecolabelled products.

R27 Substances on REACH's candidate list

Substances on REACH's candidate list cannot be used in the processes following fibre production.

- Declaration from the sub-supplier that carries out the various processes which declares that no substances on the candidate list are used.

Forbidden substances

The use of a range of chemicals is prohibited in the further treatment of the fibre. The requirement is unchanged and is harmonised with the EU Ecolabel's criteria version 2009. Alkylphenol ethoxylates (APEO) are banned, because the products of its biodegradable products are not easily broken down, and some of the products of the breakdown of these substances are deemed to be endocrine disrupting by the EU (e.g. nonylphenol). Linear alkylbenzene sulphonate (LAS) is toxic to aquatic organisms and not biodegradable in an anaerobic environment. Ethylenediaminetetraacetate (EDTA) and diethylenetriaminepentaacetate (DTPA) are suspected of being able to mobilise heavy metals in certain environments, because they can bind with these. In addition, the substances are not easily biodegradable. Dimethyl ammonium chloride (DMDMAC), distearyl dimethyl ammonium chloride (DSDMAC), and di (hardened tallow) dimethyl ammonium chloride (DHTDMAC) are examples of quaternary ammonium compounds. Quaternary ammonium compounds have several undesirable

environmental effects. They are difficult to break down and are often extremely toxic for aquatic organisms.

R28 Forbidden substances

- Alkylphenol ethoxylates (APEO)
- Linear alkylbenzene sulphonate (LAS)
- bis (hydrogenated tallow alkyl) dimethyl ammonium chloride (DTDMAC), distearyl dimethyl ammonium chloride (DSDMAC), di (hardened tallow) dimethyl ammonium chloride (DHTDMAC)
- Ethylene diamine tetra acetate (EDTA) and diethylene triamine penta acetate (DTPA)

must not be used and must not be included as a component in the used preparations or mixtures.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or declaration from the chemical supplier that these chemicals and chemicals that contain these substances are not used.

Biocide products and antibacterial substances

The requirements are partially changed and only one of the requirements is harmonised with the EU Ecolabel's criteria from 2009. The requirement that chlorophenols, PCB and organic tin compounds are not permitted during the transport or storing of products or semi-finished goods is maintained and harmonised with the EU Ecolabel. These chemicals can be used to prevent the textiles being exposed to moths and other insects during storage and transport. These are all chemicals that are harmful to health and the environment, and are therefore prohibited.

Previously, there was a requirement that biocide products or biostatic products could not be added if they could be emitted during use. This requirement has been removed in the new criteria for the EU Ecolabel from 2009. Biocide products and antibacterial products are not desirable in ecolabelled products. Nordic Ecolabelling has therefore introduced a requirement that prohibits the addition of biocides and antibacterial substances. An increase has been seen in products to which such substances are added, e.g. in sportswear in order to prevent smells. One of the substances that is added is nano silver. Biocides and antibacterial substances are not necessary additives in a product, and there is concern that the increased use of such substances can increase bacterial resistance to antibiotics.

R29 Chlorophenols (and their salts and esters), PCB and organotin compounds in transport and storage

Chlorophenols (and their salts and esters), PCB and organotin compounds must not be used in connection with the transport or storage of products and semi-finished goods.

- EU Ecolabel licence or declaration from the supplier at each stage in the production chain that these substances or compounds are not used in the yarn, fabric and/or the

final product. If this declaration shall be verified, the following testing method and limit value shall be used: Derivation with acetic anhydride, analysis through capillary gas liquid chromatography with electron capture detection; the limit value is 0.05 ppm.

R30 Biocides and antibacterial substances

The addition and/or integration of biocides and/or antibacterial substances to the fibre, fabric or textile is not permitted.

Silver ions and nano-silver are also regarded as antibacterial substances.

- Declaration from the fibre, fabric or textile producer that biocides and/or antibacterial substances are not added.

Bleaching agents

The requirement is changed from the previous version, but is still harmonised with the EU Ecolabel's criteria from 2009. Bleaching agents that contain chlorine are harmful to the environment and are therefore prohibited. The use of chlorine containing bleaching agents is reduced, and there are alternatives such as hydrogen peroxide (H₂O₂)¹¹¹. The requirement does not apply to the production of regenerated cellulose fibres, since this is a process where it can be difficult to use an alternative to chlorine based bleaching agents. Requirements for bleaching agents for regenerated cellulose fibres are set in R12.

R31 Bleaching agents

Chloric substances must not be used as bleaching agents for yarn, fabric and finished products.

This requirement does not apply to the production of regenerated cellulose fibres.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a declaration that chloric bleaching agents are not used.

Detergents, emollients/fabric softeners and complexing agents

The formulation of the requirement has been changed somewhat, since it has been harmonised with the EU Ecolabel's criteria from 2009. Requirements regarding biodegradability for surface active substances and other relevant substances is a standard requirement in the Nordic Ecolabelling criteria for various chemical products, and statutory requirements in the EU. Biodegradability is an important parameter in order to reduce environmental impact, and extremely relevant for productions outside Europe.

¹¹¹ EU Ecolabel background document, 2007

R32 Biodegradability of detergents, fabric softeners and complexing agents

Surface-active agents in detergents and fabric softeners at each wet treatment plant shall be ultimately aerobically biodegradable.

At least 95% of the weight of other fabric softeners, complexing agents and detergents at each wet treatment plant shall be sufficiently biodegradable, or able to be eliminated in the waste water treatment plants.

For testing methods for ultimately aerobically biodegradable substances, see Appendix 2.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a list of products used, safety data sheets and test report in accordance with the testing methods described in Appendix 2.

Cerium compounds in yarn and fabric

The requirement is not changed from the previous version and is harmonised with the EU Ecolabel's criteria. According to the EU Ecolabel's background document¹¹² this is not particularly relevant for yarn manufacturers and factories in Europe, but such compounds can still be used in developing countries and the requirement is therefore maintained.

R33 Weight increase

Yarn and fabric must not be treated with cerium compounds to increase the weight.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or declaration from the yarn and fabric producer that these compounds are not used.

Dyeing

A number of requirements are set for chemicals used in dyeing processes. Some of the requirements have been reformulated in relation to the previous criteria.

Classified dyes and pigments

Requirements are set that dyes, pigments or mixtures that are used may not be classified as harmful to the environment, carcinogenic, mutagens, harmful to fertility or allergenic. The requirement has been changed and is no longer harmonised with the EU Ecolabel's criteria. In the EU Ecolabel's criteria from 2009, the requirements are divided into lists of dyes that are prohibited, and a requirement where dyes that contain more than 0.1% of their total weight of substances that are classified as carcinogenic, harmful to fertility, mutagens (CMR classified substances) or allergenic may not be used. Nordic Ecolabelling has chosen to formulate the requirement without negative lists with a general prohibition against the stated classifications in order to include all problematic dyes. The requirement is identical to the requirement

¹¹² EU Ecolabel background document 2007

for textiles in Nordic Ecolabelling's criteria for furniture. In addition to the prohibition of CMR and carcinogenic substances, a requirement regarding substances classed as hazardous to the environment and toxic substances has been introduced. The EU Ecolabel does not have requirements for these classifications. Reducing the use of environmentally harmful chemicals is central in Nordic Ecolabelling's environmental pollutants policy.

R34 Dyes, colourants and pigments

Dyes, colourants and pigments shall not be classified in accordance with Table 3:

Table 3: Classification of dyes, colourants and pigments

Classification	Hazard symbols and risk phrases according to Directive 67/548/EEC*	CLP-regulation 1272/2008*
Environmental hazard	N with R50, R50/53, R51/53 and/or R59	Category Acute 1 with H400, category Chronic 1, 2 with H410, H411 Ozone: EUH 059
Very toxic	Tx (T+ in Norway) with R26, R27, R28 and/or R39	Acute Category 1 or 2 with H330, H310 and/or H300 and/or H370
Toxic	T with R23, R24, R25, R39 and/or R48	Acute Category 2 or 3 with H330, H331, H311 and/or H301 and/or Category 1 with H370, and/or Category 1 with H372
Carcinogenic	T with R40 T with R45 and/or R49	Carc 1A/1B/2 with H350, H350i and/or H351
Mutagenic	T with R46 and/or Xn with R68	Mut 1B/2 with H340 and/or H341
Toxic for reproduction	T with R60 and/or R61, Xn with R62 and/or R63.	Repr 1A/1B/2 with H360F,, H360D, H361f and/or H361d
Sensitizing	Xn with R42 and/or Xi with R43	Resp.Sens 1 with H334 or Skin Sens 1 with H317

**The classification applies in accordance with EU substance directive 67/548/EEC with later changes and adjustments, and/or CLP regulation 1272/2008 with later changes. In the transfer period, i.e until 1 June 2015, classification in accordance with the EU substance directive or the CLP regulation can be used. After the transfer period, only classification in accordance with the CLP regulation will apply. A list of R sentences is given in appendix 3. Please note that the producer is responsible for correct classification.*

- Declaration from the dye works that dyes, colourants and pigments are not classified in accordance with Table 3, and safety data sheets in accordance with Directive 67/548/EEC or Regulation 1272/2008/EEC.

Impurities in dyes and pigments

Dyes can contain metal impurities because metals are used as catalysts during production. Inorganic pigments are based on metals such as zinc, barium, lead, iron, cadmium and chromium. Some of the metals are heavy metals. In order to limit the content of metals in dyes and pigments, a requirement is set that a range of metals must not exceed stated limit values. The limit values are in accordance with the EU Ecolabel's background document checked in accordance with ETAD (The Ecological

and Toxicological Association of Dyes and Organic Pigments Manufacturers) and are still relevant. The requirements are unchanged and are harmonised with the EU Ecolabel's criteria from 2009.

R35 Impurities in dyes with fibre affinity

Impurities in colourants with fibre affinity must not exceed the following values: Ag 100 ppm, As 50 ppm, Ba 100 ppm, Cd 20 ppm, Co 500 ppm, Cr 100 ppm, Cu 250 ppm, Fe 2 500 ppm, Hg 4 ppm, Mn 1 000 ppm, Ni 200 ppm, Pb 100 ppm, Se 20 ppm, Sb 50 ppm, Sn 250 ppm and Zn 1 500 ppm.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a declaration from the colourant producer that shows that the requirement is fulfilled.

R36 Impurities in pigments: Insoluble colourants without fibre affinity

Impurities in colourants without fibre affinity must not exceed the following values: As 50 ppm, Ba 100 ppm, Cd 50 ppm, Cr 100 ppm, Hg 25 ppm, Pb 100 ppm, Se 100 ppm, Sb 250 ppm and Zn 1 000 ppm.

Pigments are defined as insoluble colourants without fibre affinity.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a declaration from the colourant producer that shows that the requirement is fulfilled.

Chrome mordants

The requirement is unchanged and is harmonised with the EU Ecolabel's criteria from 2009. Chromium is toxic, and is therefore used to a limited extent. This can however still be relevant for wool and polyamide, and chrome mordants are therefore prohibited.

R37 Chrome mordants

The use of chrome mordants is not permitted.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a declaration from the dye works that chrome mordants are not used.

Metal complex dyes

The requirement is changed from the previous version, and only partially harmonised with the EU Ecolabel's criteria from 2009. Previously, the use of metal complex dyes was permitted if a cleaning plant which reduced the emissions of metals to the environment was used. It is now suggested to only allow metal complex dyes for the dyeing of wool and polyamide. It is difficult to avoid the use of metal complex dyes for these materials, particularly in the dyeing of dark colours, and according to the industry cannot be replaced with other dyes.¹¹³ Metal complex dyes are problematic

¹¹³ EU Ecolabel background document, 2007

because they contain toxic heavy metals. A requirement has therefore been set that if metal complex dyes are used, the effluent shall be purified. The testing method that shall be used has been changed to ISO 17294-2, since contact with the industry¹¹⁴ shows that the previous testing methods, ISO 8288 for Cu and Ni and EN1233 for Cr are outdated, and seldom used today. It is however possible to document the requirement using methods equivalent to ISO 17294-2, and a valid EU Ecolabel licence version 3 from 2009 is also approved as documentation.

R38 Metal complex dyes

Metal complex dyes are only permitted in the dyeing of wool, wool mixes (i.e. wool mixed with other fibres such as viscose) and polyamide.

Emissions to water after cleansing must not exceed 75 mg/kg fibre for Cu, 75 mg/kg fibre for Ni and 50 mg/kg fibre for Cr.

Emissions of Cu and Ni shall be analysed in accordance with ISO 8288 and emissions of Cr shall be analysed in accordance with EN 1233 or equivalent methods.

- Declaration from the dye works that metal complex dyes are not used. For the dyeing of wool, wool mixes and polyamide, test reports from the dye works that show that the requirement is fulfilled, or valid EU Ecolabel licence in accordance with the Commission's decision from July 2009 for the emission of Cu, Ni and Cr.

Azo dyes

The requirement has been expanded to include two aromatic amines, but is otherwise unchanged. The requirement is harmonised with the EU Ecolabel's criteria from 2009. Azo dyes which release a range of amines are prohibited in the EU in accordance with directive 2002/61/EC, but can still be used outside of the EU. The amines that are released from azo dyes can be carcinogenic, allergenic, irritant and toxic.

R39 Azo dyes

Azo dyes that can release the aromatic amines given in Table 4 may must not be used.

Table 4: Azo dyes

4-aminodiphenyl
Benzidine
4-chloro-o-toluidine
2-naphthylamine
o-amino-azotoluene
2-amino-4-nitrotoluene
p-chloraniline
2,4-diaminoanisol

¹¹³ Ragnvald Svarstad, GU, personal communication, January 2012

4,4'-diaminodiphenylmethane
3,3'-dichlorbenzidine
3,3'-dimethoxybenzidine
3,3'-dimethylbenzidine
3,3'-dimethyl-4,4'-diaminodiphenylmethane
p-cresidine
4,4'-oxydianiline
4,4'-thiodianiline
o-toluidine
2,4-diaminotoluene
2,4,5-trimethylaniline
4-aminoazobenzene
o-anisidine
2,4-Xylidine
2,6-Xylidine

Analysis of azo dyes shall be carried out in accordance with EN 14 362-1 and 2.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or declaration from the dye works that these dyes are not used, and/or a test report which shows that the requirement is fulfilled.

6.9.2 Auxiliary chemicals for fibres and yarn

The requirements in this chapter are specific requirements that apply to auxiliary chemicals and finishing agents for fibres and yarn, and apply to textile processes following the production of the fibre, e.g. spinning.

Sizing agents

The requirement has been changed from the previous version, in that the possibility for the sizing agent to be eliminated in a purification plant is removed. The reason that this has been removed is that sizing agents that are not biodegradable will accumulate in sludge, something that is not desirable. The requirement is harmonised with the EU Ecolabel's criteria from 2009. Biodegradability is an important quality in order to reduce the impact on the environment, and biodegradable sizing agents are easily available. The requirement regarding biodegradability is also in line with BAT¹¹⁵, which says that sizing agents should be easy to break down or sufficiently biodegradable.

¹¹⁵ European Commission, July 2003, Integrated Pollution Prevention and Control (IPPC), Reference Document on Best Available Techniques for the Textile Industry

¹¹⁵ EU Ecolabel background document, 2007

R40 Sizing agents

At least 95% (dry weight) of the components of sizing agents used for yarn shall be sufficiently biodegradable. If they are not sufficiently biodegradable, they shall be recycled.

The calculation is based on the sum of the individual components.

For a description of testing methods for sufficient biodegradability, see Appendix 2.

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports from the final preparation producer in accordance with the testing methods described in Appendix 2.

Spinning additives

The requirement is unchanged and is harmonised with the EU Ecolabel's criteria from 2009. Various additives are added to the fibre and yarn during the spinning process, and thereafter removed during treatment before dyeing. These additives can be lubricants, surfactants and anti-static substances. These substances contribute to the emission of pollutants to water and air from the dyeing processes. A requirement is therefore set that 90% of the dry weight of additives for spinning solutions, spinning and preparations for primary spinning shall be sufficiently biodegradable or eliminated in the water purification plant.

R41 Spinning additives

For additives for spinning solutions, spinning and preparations for primary spinning (including carding oil, spin finish and lubricants), at least 90% (dry weight) of the used preparations' components shall either be sufficiently biodegradable or able to be eliminated in the waste water treatment plant.

For a description of testing methods for sufficient biodegradability, see Appendix 2.

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports from the additives producer in accordance with the testing methods in Appendix 2.

PAH

The requirement is changed from the previous version, and is harmonised with the EU Ecolabel's criteria from 2009. Previously, the polycyclic aromatic hydrocarbons (PAH) content in the mineral oil should be 1.0% of the total weight. This has now been changed to 3.0% of the total weight. It is possible to fulfil the previous requirement of 1.0% total weight, but due to the high costs linked to producing products with such a low content, the content has been permitted to increase to 3% of the weight¹¹⁶.

R42 PAH content

The content of polycyclic aromatic hydrocarbons (PAH) in the mineral oil part of an auxiliary chemical shall be less than 3.0% of the total weight.

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or relevant information such as safety data sheets, product data sheets or
-

declarations which clarify the polycyclic aromatic hydrocarbons content, or declarations that products containing mineral oils are not used.

6.9.3 Hide and leather chemicals

The requirements in this chapter apply to chemicals used in the treatment of hides/skins and leather, and cover tanning and other wet processes.

Overview of chemicals

In order to achieve an overview of and ensure the quality of the information that is provided, it is important for Nordic Ecolabelling to have relevant knowledge of which chemicals are used in the treatment of hides/skins and leather.

R43 Overview of chemicals

An overview of all chemicals that are used in the treatment (tanning and other wet processes) of hides/skins and leather shall be submitted.

Overview of chemicals and safety data sheets.

REACH's candidate list

The requirement is new in this version of the criteria. The substances on REACH's candidate list are very problematic substances, and can be carcinogenic and harmful to the environment. Nordic Ecolabelling regards it as important to ensure that no substances on this list are used in Nordic Ecolabelled products. The candidate list can be found on the ECHA homepage: <http://echa.europa.eu/web/guest/candidate-list-table>

R44 Substances on REACH's candidate list

Substances on REACH's candidate list shall not be used at the tannery.

Declaration from the tannery that no substances on the candidate list are used.

Alkylphenol ethoxylates (APEO/NPE), perfluorooctane sulfonate (PFOS)

The requirement is partly new, and is taken from EU Ecolabel's requirement for shoes. Previously, it was stated that the requirement regarding auxiliary chemicals, equivalent to R17 in this document, should be fulfilled, but it is assumed that alkylphenol ethoxylates and perfluorooctane sulfonates are most relevant to hides/skins and leather. Nonylphenol is endocrine disrupting, and has previously been used in the removal of fat from hides/skins such as sheepskin, as an emollient, and in certain finishing mixtures¹¹⁷. Nonylphenols are also mentioned in BAT, where it is

¹¹⁷ Stefan Rydin, personal communication, March 2011.

stated that they can be replaced. PFOS can still be used globally as a treatment for stain resistant properties, despite the fact that it is now being phased out in the EU¹¹⁸.

R45 Alkylphenol ethoxylates (APEO/NPE) and perfluorooctane sulphonate (PFOS)

Alkylphenol ethoxylates (APEO/NPE) and perfluorooctane sulphonate (PFOS) shall not be used at the tannery.

Declaration from the tannery that these chemicals are not used.

Dyes and pigments

Dyes, colourants, and pigments for hides/skins and leather shall fulfil the same requirements as dyes for textiles. This has not been changed from the previous version, but the requirement for the classification of dyes, colourants and pigments has been changed, see R34. The dyes that are developed for the textile industry are often the same dyes that are used by the tanning industry. The requirements ensure low levels of undesirable heavy metals, arylamines and allergens.

R46 Dyes and pigments for dyeing

Dyes and pigments shall fulfil R34, R35, R36 and R39.

Safety data sheets and the documentation specified in the requirements referred to.

Biocides

Biocides are used in various steps of the production processes to prevent the hides/skins and leather being attacked by bacteria and fungi. Biocides are also added during transport and storage. Biocides in themselves are problematic substances because they have the property that they shall prevent the growth of undesirable organisms, and can be harmful to the environment, allergenic, and have CMR qualities. According to the new BAT document for hides/skins and leather,¹¹⁹ biocides that are prohibited in Europe can be imported in hides/skins and leather from other countries. It can be difficult to avoid the use of biocides in the production process, and it can be necessary to shift between various different biocides so that the organisms do not become resistant. The Biocide directive is divided into various product groups, where group 9 covers hides/skins and leather. No biocides are currently approved for use in group 9. According to contact with the industry, an evaluation of biocides for the hides/skins and leather industry should have been carried out in 2010, but this work has been delayed. Nordic Ecolabelling is therefore unsure of how far the work

¹¹⁷ Study For the Footwear Criteria Revision, Prel. Rep. – 1st Background Report, 23 Oct 2008

¹¹⁸ Draft reference Document on Best Available Techniques in the Tanning of hides and skins, draft 2. July 2011

¹¹⁹ Stefan Ryding, personal communicaiton.

has come, and unsure of how the suggested requirement will function. Nordic Ecolabelling would therefore like to receive comments on this requirement.

Chlorophenols and their salts and esters are substances that are seldom used, but still regarded as relevant since some suppliers can still use these biocides during transport and storage. These substances shall not be used within the EU, but may still be found in raw materials that originate from outside the EU¹²⁰.

R47 Biocides

Information on what kind of biocides that are used in the processes/tannery. The biocides must follow the Biocide 98/8/EF directive.

Chlorophenols and their salts and esters must not be used in connection with the transport or storage of products.

- Information on what kind of biocides that are used and declaration from the tannery that the biocides follow the Biocide 98/8/EF directive.
- Declaration from the supplier at each stage in the production chain that these substances or compounds are not used during transport or storage. Alternative, testreport for leather, EN ISO 17070 (detection limit 0,1 ppm)

Halogenated organic substances

The requirement is new in this version of the criteria. According to the draft of the new BAT document from July 2011¹²¹, halogenated organic substances can be used in several process stages. Normally, large quantities of halogenated substances should not be used in the EU or globally, but they can exist in preservatives (biocides) and fattening agents, including chloroalkanes and SCCP (short chained chlorinated paraffins with a chain length of C10-C13) are used in particular¹²². Fattening agents that contain SCCP (over 1%) may not be used in the EU in accordance with REACH (EU Regulation 1907/2006), and SCCPs are also on the candidate list. Some of the biocides can be halogenated. Biocides that are following the Biocide Directive 98/8/EC are exempted from the requirement.

R48 Halogenated organic substances

Halogenated organic substances shall not be used in the treatment of hides/skins and leather.

Halogenated biocides that are following Biocide Directive 98/8/EC are exempted from the requirement.

- Declaration from the tannery that halogenated organic substances are not used or that the biocides used are following the Biocide Directive 98/8/EC.

¹²¹ Stefan Rydin, personal communication

¹²⁰ Draft Reference document on Best Available Techniques for the Tanning of hides and skin, draft July 2011

6.9.4 Finishing chemicals

The requirements in this chapter relate to various types of finishing where chemicals are added in order to give the textile, hide or leather different qualities, such as anti-static, non-iron and anti-wrinkle, as well as requirements for printing.

Finishing for felting

The requirement is unchanged and is harmonised with the EU Ecolabel’s criteria from 2009. However, the title is changed from finishing for shrinkage to finishing for felting. Halogenated agents are added in order to avoid the felting of the wool, and so that wool can be machine washed. These substances can react with other organic compounds in water, and form AOX. The addition of such substances is therefore only permitted for wool where this is necessary for the quality of the product.

R49 Finishing for felting

Halogenated agents or preparations must only be used on carded wool and loose, scoured wool.

- Valid EU Ecolabel licence in accordance with the Commission’s decision from July 2009 or declaration from the finisher that halogenated agents and preparations are not used (with the exception of carded wool and loose, scoured wool).

Classification of finishing chemicals

The requirement is not changed, but a definition of what is meant by finishing has been added, and the title is changed. The requirement is harmonised with the EU Ecolabel’s criteria from 2009. Finishing refers to any physical or chemical treatment that gives the textile, hide/skin or leather specific properties, so that it for example becomes soft, waterproof, or non-iron. In general, this finishing is done after the dyeing, even though some chemicals can be added to the dye bath, such as anti-moth agents in wool. Other finishing treatments can be “easy care” for cellulose fibres and anti-static treatment for synthetic fibres. In the requirement, it is forbidden to use chemicals that are classified as harmful to the environment, carcinogenic, harmful to reproduction or mutagens.

R50 Classification of finishing chemicals

Finishing agents or preparations that contain more than 0.1 percentage weight of substances that have been assigned or may be assigned one or more of the risk phrases in Table 5 are prohibited:

Table 5: Classification of finishing chemicals

Classification	Hazard symbols and risk phrases according to Directive 67/548/EEC*	CLP-regulation 1272/2008*
Environmental hazard	N with R50, R50/53, R51/53, 52/53 and/or R53	Category Acute 1 with H400, category Chronic 1 with H410, category Chronic 2 with H411,

		category chronic 3 with H412 and/or category chronic 4 with H413
Carcinogenic	T with R45 or R49 Xn with R40	Carc 1A/1B/2 with H350, H350i and/or H351
Mutagenic	T with R46 or Xn with R68	Mut 1B/2 with H340 and/or H341
Toxic for reproduction	T with R60 and/or R61 Xn with R62 and/or R63	Repr 1A/1B/2 with H360, H361

**The classification applies in accordance with EU substance directive 67/548/EEC with later changes and adjustments, and/or CLP regulation 1272/2008 with later changes. In the transfer period, i.e until 1 June 2015, classification in accordance with the EU substance directive or the CLP regulation can be used. After the transfer period, only classification in accordance with the CLP regulation will apply. A list of R sentences is given in appendix 3. Please note that the producer is responsible for correct classification.*

- ☒ Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009 or declaration from the finisher that finishing agents are not used, or an overview of the finishing agents that are used, as well as safety data sheets or the equivalent that show that the requirement is fulfilled.

Impregnation with PFCs

Polyfluorinated organic compounds (PFCs) are used in the impregnation of textile products, particularly in sportswear for outdoor use to make the materials water repellent. The report "Fluormiljøgifter i allværsklær"¹²³ published by Naturvernforbundet in Norway and Naturskyddsforeningen in Sweden in 2006 shows that there are several different fluorides in jackets on the market. There are several different types of PFCs and a number of these are extremely harmful to health and the environment. One of these, PFOS (perfluorooctane sulfonate) is prohibited in textiles and impregnating agents in Norway¹²⁴. A survey published by Danish researchers in Environmental Health in October 2011 links the use of fluorinated substances to an increased risk of breast cancer¹²⁵. The use of polyfluorinated compounds is not desirable in Nordic Ecolabelled textiles, and a prohibition has therefore been introduced. The requirement is new in this version of the criteria.

R51 Finishing with fluorinated organic compounds

Finishing with fluorinated organic compounds is not permitted.

- ☒ Declaration from the finisher that fluorinated organic compounds are not used.

¹²³ Fluormiljøgifter i allværsjakker, Norges Naturvernforbund, report 2/2006

¹²³ Miljøstatus i Norge: <http://www.miljostatus.no/no/Tema/Kjemikalier/Noen-farlige-kjemikalier/PFOS-PFOA-og-andre-PFCs/> (accessed 4 Dec 2011)

¹²⁴ Bonefeld-Jorgensen et al. 2011, Perfluorinated compounds are related to breast cancer risk in Greenlandic inuit: a case control study, Environmental Health, 2011, Oct 6;10:88

Printing – VOC in printing pastes and plastisol-based printing

The requirement regarding the VOC content of printing pastes and the prohibition of plastisol-based printing is unchanged, and is harmonised with the EU Ecolabel's criteria from 2009. The requirement regarding VOC in printing pastes is set in order to avoid printing pastes with a high VOC content being used, e.g. white spirit. Plastisol-based printing is prohibited because the ink is based on PVC.

R52 VOC in printing pastes

Printing pastes must not contain more than 5% volatile organic compounds (VOC).
VOC are defined as compounds that have a vapour pressure of 0.01 kPa or higher at 293.15 K or an equivalent volatility under the conditions of use.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009 or declaration that printing is not used, or a declaration and documentation from the finisher that shows that the requirement is fulfilled.

R53 Plastisol-based printing

Plastisol-based printing is not permitted.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009 or declaration from the finisher that printing is not used, or a declaration that plastisol-based printing is not used.

6.10 Emissions

6.10.1 Textiles

Effluent from wet processes

The requirement has been changed in that the limit value for COD emissions in the effluent has been reduced from 25 to 20g COD/kg. The requirement is harmonised with the EU Ecolabel's criteria from 2009. The reason for the reduction is based on data from licencees. The requirement shall be documented by test reports in accordance with ISO 6060. High COD levels in the effluent can result in a lack of oxygen in the aquatic environment, and thereby harm animal and plant life. A requirement is also set that the temperature of the effluent shall be below 40 °C (unless the temperature in the recipient is higher) and that the pH shall be between 6 and 9 (unless the pH value in the recipient lies outside of this interval).

R54 COD, temperature and pH of effluent from wet processes

COD emissions in effluent from wet processes that does not go to municipal or other external purification plants may be a total of 20g/kg fibre.

The COD content shall be tested in accordance with ISO 6060 or the equivalent. The report shall contain a calculation which shows the COD emissions in g per kg textile. The requirement can be documented by COD emissions on an annual basis.

The pH value of the effluent that is released into surface water shall be 6-9 (unless the pH value in the recipient lies outside of this interval), and the temperature shall be below 40°C (unless the temperature in the recipient is higher).

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009 or test report for COD emissions that shows that the requirement is fulfilled, as well as reports that show measurements of the pH and temperature of the effluent.

6.10.2 Hides/skins and leather

Chromium (III) and COD in the effluent

Emissions of effluent from tanneries can contain chromium (III) and COD. The requirement for chromium (III) has not been changed, but the requirement for COD is changed. Previously, the COD content should be reduced by 85% in the effluent, but the requirement is now that the chemical oxygen demand in the effluent cannot exceed 10 kg/tonne raw material of hide/leather. The limit of 10 kg/tonne raw material is based on the draft of the new BAT document. The reason for the change is that it is more relevant to link COD emissions in the water to the quantity of hides/skins and leather that are treated. Water savings will have a negative effect on the amount of COD, since a low water consumption gives a higher content of pollutants even though the level of the pollution remains the same. The COD content of the effluent is a parameter that has high RPS. Organic compounds that use up the oxygen in the aquatic environment when breaking down can be a great problem in the absence of a good purification plant, and this is something that tanneries are working actively to reduce. Nordic Ecolabelling therefore sets requirements to limit COD emissions.

R55 Chromium (III) in the effluent

Effluent from tanneries shall contain less than 1 mg chromium (III) per litre of water. The chromium (III) content shall be tested in accordance with ISO 9174, EN 1233, EN ISO 11885 for chromium or the equivalent.

- Test report from the tannery that shows that the requirement is fulfilled.

R56 COD in effluent

The chemical oxygen demand (COD) in the effluent shall not exceed 10 kg/tonne raw material (raw hide or hide) expressed as an annual average.

The COD content shall be tested in accordance with ISO 6060 or the equivalent.

The equivalent value converted to TOC is also accepted.

- Test report from the tannery that shows that the requirement is fulfilled.

6.11 Energy and water consumption

6.11.1 Textiles

The requirement has been changed in order to obtain clearer, production specific information about the water and energy consumption in wet processes during textile production. The wet treatment of textiles can take the form of washing, bleaching, dyeing, printing and finishing. All these processes involve a broad range of chemicals, as well as a relatively large water and energy consumption. Wet treatment applies to fibres, yarn and knitted/woven goods¹²⁶. For version 3 of the criteria, Nordic Ecolabelling has requested data for energy and water consumption. The data that is received in connection with licencing has been highly variable in terms of quality as well as level.

For example, water consumption during the treatment of cotton varies between 8 l/kg textile and 204 l/kg textile. Basic data from licencees is not clear enough and there is far too little information for any significant difference to be seen. One of the reasons for this great variation is that some producers purify and reuse the water, a so-called “Zero liquid discharge system”, while others send the water to purification. Another reason for the varying consumption is the producer’s selection of methods, such as for dyeing. Here, batch dyeing can be used, or continuous/semi-continuous dyeing. The latter dyeing processes have lower water consumption, but a disadvantage in relation to the amount of resulting pollution¹²⁷. The water consumption is within the range of 110-290 l/kg for the dye works that use batch processes. Dye processes that mainly use continuous dyeing come below 100 l/kg, and printers works are at around 60 l/kg¹²⁸. Which method the licencee uses is not stated in the documentation that is asked for in the current requirements, and it can therefore not be guaranteed with certainty which method gives which result when used.

Together with water consumption and effluent, energy consumption is one of the most significant environmental factors in the production of textiles. Data from the licencees also shows that the level of energy consumption is highly variable. The lowest consumption is 0.22 kWh/kg textile, compared to 3.8 kWh/kg textile. Beyond data on electricity, data on the use of gas and fuel is received.

Nordic Ecolabelling wishes to continually direct focus on energy and water consumption in the production of textiles, and therefore sets requirements that the

¹²⁶ Miljøstyrelsen 1999, Renere teknologi i tekstil- og beklædningsindustrien, Miljøprojekt, nr 502

¹²⁷ European Commission, July 2003, Integrated Pollution Prevention and Control (IPPC), Reference Document on Best Available Techniques for the Textile Industry

¹²⁷ Information from licencees

¹²⁸ Draft reference Document on Best Available Techniques in the Tanning of hides and skins, draft 2. July 2011

consumption of energy and water shall be reported. The requirement is formulated so that what information shall be submitted is more clear.

R57 Energy and water consumption

The consumption of electricity (in kWh) and fuel as well as water consumption (in litres) for each wet treatment and finishing shall be stated. The data shall also contain information about the amount of fibre/textile that is treated in kg.

'Wet treatment' refers to pre-treatment, dyeing and finishing.

- ☒ Provide details of the wet treatment process and consumption of water and electricity (in kWh), and procurement of fuel, and send with confirmation from the supplier or a copy of an invoice which shows the consumption and procurement of electricity and fuel. State the amount of fibre/textile treated in kg.

6.11.2 Hides/skins and leather

Energy and water consumption

The requirement to provide information about energy consumption and the absolute requirement for water consumption are new to the criteria. In IPPC's draft for a new BAT report¹²⁹ for hides/skins and leather from July 2011, there is limited information about the energy consumption of tanneries, but there may be significant energy consumption linked to drying processes during tanning, for example. Nordic Ecolabelling therefore wishes to focus on energy consumption during tanning, and sets requirements that the consumption of electricity and fuel shall be reported.

Reducing water consumption is regarded as important environmental work. According to IPPC's draft from 2011¹³⁰ the usual water consumption of modern tanneries can be reduced from 40 - 50 m³/tonne raw hides/skins to 12 – 30 m³/tonne for bovine hides/skins, if the tannery has effective control of its processes. According to the draft, there are tanneries in Germany that use 15 – 20 m³/tonnes and one tannery reports 9 m³/tonnes. One tannery in the Netherlands states a usage of approx. 20 m³/tonne for fresh bovine hides/skins. More water is required in the tanning of calf skin, approx. 40 m³/tonnes. The conclusion in the BAT draft is that water consumption for bovine hides/skins varies between 16-28 m³/tonnes raw hide. For the skins of other animals, such as sheep and reindeer, the value is normally somewhat higher¹³¹. Based on this information, Nordic Ecolabelling has chosen to set the requirement at 25m³ water/tonne hides/skins and leather that is treated. Since the

¹³⁰ Draft reference Document on Best Available Techniques in the Tanning of hides and skins, draft 2. July 2011

¹³¹ Stefan Ryden, personal communication, March and December 2011.

requirement is new, Nordic Ecolabelling would like comments on the suggested limit for water consumption.

R58 Energy consumption

The consumption of energy (in kWh) and fuel used during the tanning of hides/skins and leather shall be stated.

- Provide details of the consumption of electricity (in kWh), and procurement of fuel, and send with confirmation from the supplier or a copy of an invoice which shows the consumption and procurement of electricity and fuel. State the amount of hides/skins and leather that is treated in kg.

R59 Water consumption

The annual average water consumption during the tanning of hides/skins and leather shall not exceed 25 m³/tonne of hides/skins and leather.

- Provide details of the water consumption and send with a confirmation from the supplier or a copy of an invoice which details the consumption. Also state the total quantity of hide/leather that is treated in tonnes and calculations that show the water consumption per tonne hide/leather.

6.12 Quality and functionality requirements

Nordic Ecolabelling sets requirements for the usage properties and durability of textiles, hides/skins and leather. The requirements are important since a Nordic Ecolabelled product shall be of good quality, and seen from an environmental and resources perspective, products shall be able to be used for a certain period of time before they become worn out and must be replaced.

6.12.1 Textiles

The requirements for textiles are equivalent to the EU Ecolabel's requirements for textiles, adopted 9 July 2009. The requirements have not been significantly changed since the previous version. Only small adjustments have been made. The requirement for pilling is not included in the EU Ecolabel's criteria. This is taken from Nordic Ecolabelling's criteria for furniture. The requirement is regarded as relevant for fabrics that are marketed as furniture fabrics, and test reports that show at least level 4 shall therefore be submitted in accordance with EN ISO 12945 or an equivalent standard.

The other requirements for usage properties shall either be documented with a valid EU Ecolabel licence, or test reports in accordance with international standards. Other testing methods can also be used if it can be confirmed by an independent third party that the test method is equivalent to the test method stated in the requirement.

Formaldehyde

The requirements are changed and harmonised with the EU Ecolabel's criteria from 2009. The limit values for the permitted quantity of formaldehyde in the finished textile have been tightened from 300 ppm to 75ppm in products. In addition, a

separate limit value of 20 ppm has been introduced for products for babies and children under the age of three years. The limit value for products in direct contact with the skin, such as underwear, is unchanged at 30 ppm. Formaldehyde is an irritant to the eyes, throat and skin, and is classified as harmful to health with a danger of being carcinogenic. Traces of formaldehyde often remain following treatment with anti-wrinkle agents.¹³²

R60 Formaldehyde

The amount of free or partly hydrolysable formaldehyde in the final fabric shall not exceed 20 ppm in products for babies and young children under the age of three years, 30 ppm for products that will be in direct contact with the skin, and 75 ppm for all other products. The formaldehyde content shall be tested in accordance with EN ISO 14184-1.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports that show that the requirement is fulfilled.

R61 Dimensional changes during washing and drying

Dimensional changes during washing and drying shall not exceed:

— plus or minus 2 % for curtains and furniture fabrics that are removable and can be washed

— more than minus 8 % or plus 4 % for other woven products and durable non-woven products, other knitted products and terry cloths.

The requirement does not apply for fibres or yarn, products that are clearly labelled “dry clean only” or the equivalent (if the product is normally labelled in this way) or furniture fabrics that cannot be removed and washed.

The tests shall be executed in accordance with EN ISO 6330, ISO 5077 or the equivalent. The following testing procedure shall be followed: Wash three times at the temperature that is stated on the product, followed by drying in a tumble dryer unless another drying process is stated on the product.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports that show that the requirement is fulfilled.

R62 Wash fastness

The wash fastness shall be at least level 3-4 for colour change and at least level 3-4 for discolouration.

The requirement does not apply for products that are clearly labelled “dry clean only” or the equivalent (if the product is normally labelled in this way), white products, products that are neither dyed nor printed, or for non-washable furniture fabrics.

The tests shall be carried out in accordance with ISO 105 C06 (a single wash at the temperature that is stated on the product) or the equivalent.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a test report that shows that the requirement is fulfilled.

¹³² Folkehelseinstituttet:

http://www.fhi.no/eway/default.aspx?pid=233&trg=MainLeft_6039&MainArea_5661=6039:0:15,4521:1:0:0:::0:0&MainLeft_6039=6041:70095::1:6043:3:::0:0 (accessed 26.11.2011)

R63 Perspiration fastness (acidic and alkaline)

The perspiration fastness (acidic and alkaline) shall be at least level 3-4 (colour change and staining). Level 3 is permitted when the material is both a dark colour (standard depth > 1/1) and produced of recycled wool.

The requirement does not apply for white products, products that are neither dyed nor printed, furniture fabrics, curtains or similar textiles intended for interior decorating or accessories as bags.

The tests shall be carried out in accordance with EN ISO 105 E04 (acid and alkaline, comparison with multi-fibre fabric) or the equivalent.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or test reports that show that the requirement is fulfilled.

R64 Wet rubbing

Wet rubbing shall be at least level 2-3. Level 2 is permitted for indigo dyed denim.

The requirement does not apply for white products or products that are neither dyed nor printed.

The tests shall be executed in accordance with ISO 105 X12 or the equivalent.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a test report that shows that the requirement is fulfilled.

R65 Dry rubbing

Colour fastness for dry rubbing shall be at least level 4. Level 3-4 is permitted for indigo dyed denim.

The test shall be executed in accordance with ISO 105 X12 or the equivalent.

The requirement does not apply for white products, products that are neither dyed nor printed, or for curtains or similar textiles intended for interior decorating.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a test report that shows that the requirement is fulfilled.

R66 Light fastness

Light fastness shall be at least level 5 for fabrics that shall be used for furniture or curtains. For all other products, the light fastness shall be at least level 4.

For furniture, curtains or drapes, a result of 4 is allowed when the fabric is both light coloured (standard depth < 1/12) and consists of mixes with more than 20% wool or other keratin fibres, or of mixes with more than 20% linen or other bast fibres.

The test shall be executed in accordance with EN ISO 105 B02 or the equivalent.

The requirement does not apply for mattress bolsters, mattress covers and underwear.

- Valid EU Ecolabel licence in accordance with the Commission's decision from July 2009, or a test report that shows that the requirement is fulfilled.

R67 Pilling

Furniture fabrics shall have a pilling resistance equivalent to level 4.

The test shall be executed in accordance with EN ISO 12945 or an equivalent standard.

- Test report that shows that the requirement is fulfilled.

6.12.2 Hides/skins and leather

The quality requirements for hides/skins and leather are unchanged from the previous version, with the exception that the bending test requirement only applies to leather that is surface-coated. The reason for this change is that this test is not relevant for uncoated leather, since the test is used to investigate the flexibility and quality of the surface treatment.

Formaldehyde

The requirement is new in this version of the criteria. The amount of formaldehyde in the finished leather must not exceed 75 ppm. The requirement is based on the requirement for formaldehyde in the EU's criteria for the ecolabelling of shoes and the Japanese Japan Eco Leather label.

R68 Formaldehyde

The amount of free or partly hydrolysable formaldehyde in the finished leather must not exceed 75 ppm.

The formaldehyde content shall be tested in accordance with EN ISO 17226-1 or 2.

Test report that shows that the requirement is fulfilled.

R69 Tear strength of leather

The tear strength shall be over 20 N. The test shall be executed in accordance with ISO 3377 or the equivalent.

Test report that shows that the requirement is fulfilled.

R70 Bending test

The test for bending resistance shall achieve 20,000 test repetitions (20 kc) without visible damage. The requirement only applies to leather with a surface coating.

The test shall be executed in accordance with ISO 5402 or the equivalent.

Test report that shows that the requirement is fulfilled.

R71 Light fastness

Light fastness shall be at least level 3.

The test shall be executed in accordance with ISO 105 B02 or the equivalent.

Test report that shows that the requirement is fulfilled.

R72 Wear test

The wear for wet and dry conditions shall be at least level 3.

The test shall be executed in accordance with ISO 11640 or the equivalent with 20 repetitions for wet conditions and 50 repetitions for dry conditions. The result shall be read in accordance with ISO 105-A02 and ISO 105-A03 or the equivalent.

Test reports that shows that the requirement is fulfilled.

6.13 Labelling of the product

The requirement is new in this version of the criteria. Only products that consist of a minimum of 95% organic fibres, hides/skins and/or leather can be labelled with the text “organic” if the licensee desires to do this.

R73 Organic labelling

The labelling of products with the text ‘organic’ is not permitted unless the product consists of a minimum of 95% organic fibre, hide and/or leather.

‘Organic’ refers to fibre/hide/leather that is produced in accordance with the European Council Regulation (EEC) no. 2092/91 of 24 June 1991 on the organic production of agricultural products or equivalent systems. Examples are: KRAV, SKAL, IFOAM, IMO, KBA, OCIA, TDA, DEMETER.

- ☒ A copy of the label/tag and valid certificate that shows that the raw material is organically produced in accordance with European Council Regulation (EEC) no. 2092/91 of 24 June 1991 on the organic production of agricultural products or equivalent systems.

6.14 Ethical requirements

There are several ethical problems relating to the textile, hides/skins and leather industry. Several reports^{133,134,135,136} point to poor control in the supply chain, and poor working conditions such as the use of dangerous chemicals, poor protective equipment, long working hours, a lack of rights and child labour. Nordic Ecolabelling therefore sets a requirement that the basic principles and rights that follow from the ILO’s Core Conventions shall be followed. In addition, relevant ethical requirements relating to animals are set. The requirement regarding the working environment is not new, but reformulated to clarify what is required. The ethical requirements relating to animals are new in this version of the criteria.

¹³³ “Det som ikke står på vaskelappen”, report from Etisk forbruk.no

¹³³ “Syr klær for lommerusk – hvorfor levelønn må erstatte minstelønn i klesproduksjon”, Framtiden i våre hender, rapport nr1/2009

¹³⁴ Skitne klær – En vurdering av miljø og arbeidsforhold ved produksjon og bruk, og sammenligning av leverandører”, desember 2008, Forum for Utvikling og miljø.

¹³⁵ Den blinda klädimporten – Miljøeffekter från produktionen av kläder som importeres til Sverige”, A report by Swedwatch and Naturskyddsföreningen, 2008

Traceability and animal husbandry for products made from hides/skins and leather

Nordic Ecolabelling may benefit from having traceability of hides/skins and leather in order to obtain information about the possible problematic use of chemicals or the unethical treatment of animals. It is important to ensure that Nordic Ecolabelled products come from producers that ensure good animal husbandry. There is good traceability back to the stock/abattoir, with the exception of bovine hides/skins. In the EU there is traceability due to BSE (Bovine Spongiform Encephalopathy, or mad-cow disease), but traceability does not exist globally. There is an extensive global trade in bovine hides/skins, and there can be many suppliers behind each batch¹³⁷. No requirements are therefore set for traceability back to the abattoir for bovine hides/skins.

R74 Traceability and animal husbandry for products made from hides/skins and leather

The applicant must be able to document traceability of the hides/skins and leather for the following stages in the production chain:

- Abattoir (does not apply to cattle)
- Hide distributors
- Tannery

The production chain shall be described, and the name and telephone number of the abattoir, hide distributor and tannery shall be given.

Down and feathers

Down and feathers can be plucked from live birds, which is painful for the animals. This applies first and foremost to down from geese, but can also apply to other species of duck. The EFSA has looked into this problem and concluded that it is possible to remove down and feathers from living geese without causing pain to the animals, as long as this is done during the period when the feathers are shed¹³⁸. The problem is that this is not followed in the commercial production. The EFSA recommends that down and feathers should only be plucked from geese during the molting period, and that control systems are established for this. However, such a control system is not in place, and Nordic Ecolabelling has therefore set a requirement which prohibits the use of down and feathers plucked from live birds.

R75 Down and feathers plucked from live birds

The use of down and feathers plucked from live birds is prohibited.

Declaration from the supplier of down and feathers.

¹³⁷ Stefan Rydin, personal communication

¹³⁸ EFSA Scientific Opinion on the practice of harvesting (collecting) feathers from live geese for down production, 25 November 2010

Mulesing

Mulesing is a problem in the production of Merino wool, i.e. the removal of wool and skin from the sheep's hindquarters to prevent parasites. This is a method that is first and foremost used in Australia. The requirement is new in this version of the criteria. The requirement shall be documented with confirmation from the wool producer.

R76 Mulesing

Mulesing is not permitted.

Declaration from the merino wool producer that mulesing is not practised.

Working conditions

The requirements for working conditions are based on the ILO's (International Labour Organisation, which is subject to the UN) Conventions for child labour, forced labour, health and safety, the right to organise and the right to collective bargaining, discrimination, discipline, working hours and salary. The ILO has eight Core Conventions, or human rights conventions, which set minimum standards for employment.

Nordic Ecolabelling does not wish to set separate qualitative requirements and requirement levels for working conditions. Rather, requirements will be based on documentation through the producer's certification in accordance with existing standards. The requirement for working conditions will therefore be able to be documented through SA8000 certification, where a valid certificate or other documentation which shows that the requirement is fulfilled shall be submitted. SA8000 stands for Social Accountability and is a global scheme. The SA8000 standards contain requirements for:

- The prohibition of child labour
- The prohibition of forced labour and prison labour
- Health and safety requirements
- The right to organise and collective bargaining
- Discrimination
- Disciplinary practices (punishment)
- Working hours
- Salary
- Management systems

As of September 2011, there are 2,785 SA8000 certified production sites in various countries, and approx. 20% of these are within the clothing, textiles and leather industry¹³⁹.

¹³⁹ <http://www.sa-intl.org/>

One of the ILO Core Conventions, ILO 98, covers the right to organise and to bargain collectively. This involves the protection of employees who exercise their right to organise, non-interference between workers' and employers' organisations, and the promotion of voluntary collective bargaining. In some countries, including China, this is a limited right in relation to authority requirements. In China, for example, there is only one professional organisation.

Nordic Ecolabelling believes that the right to organise is fundamental, but despite this, does not set a requirement that ILO 98 shall be followed, since we see no possibility to control this. However, requirements for working conditions is an area that we wish to set stricter requirements for in the future, e.g. in that we set a requirement that alternative ways in which workers can freely and independently organise themselves and bargain must be facilitated.

So that we do not exclude producers that are currently undertaking a process to become SA8000 certified, a licence can be awarded under certain conditions in some cases. In order to award a licence under such conditions, the last report from the certifying body will be evaluated with regard to how much work remains before a licence can be awarded, as well as which areas deviate from the standard. In addition, it is a requirement that concrete action plans with specified deadlines must be submitted.

The licence can be withdrawn if the licensee no longer fulfils the SA8000 requirements or does not meet the given deadlines in any action plans.

Nordic Ecolabelling can, by agreement, approve that the requirement is documented if the production company makes public, for example on its website, how the requirements of the ILO's Conventions are adhered to and controlled by a third party.

R77 Working conditions

The basic principles and rights relating to working conditions shall be fulfilled during the production of the ecolabelled textile, hide and/or leather.

The licensee shall ensure that the relevant applicable laws and provisions, as well as the ILO's Conventions below, are followed at all production sites for the ecolabelled textile, hide and/or leather. Relevant laws and provisions can relate to factors such as safety, the working environment, environmental legislation, and plant specific conditions/permits.

The licensee shall ensure that the production of textiles, hides/skins and/or leather follows the ILO's Core Conventions, which include:

- The prohibition of child labour (Minimum Age for Admission to Employment, Convention 138 and Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, Convention 182)
- The right to organise (Freedom of Association and Protection of the Right to Organise, Convention 87)
- The prohibition of discrimination (Equal Remuneration, Convention 100 and Discrimination in Respect of Employment and Occupation, Convention 111)
- The prohibition of forced labour (Forced or Compulsory Labour, Convention 29 and Abolition of Forced Labour, Convention 105).

The employees or unions shall be informed of the statutory working rights and how the company follows up these (Code of Conduct equivalent to SA8000).

- The licensee shall have routines that ensure that the relevant applicable laws and provisions are followed at all production sites for the ecolabelled textile, hide and/or leather, and routines that show that the licensee is working to facilitate the production company to follow up the rights described in the ILO's Core Conventions.

The requirement is documented through one of the following alternatives:

- SA8000 certification (valid certificate) or
- Nordic Ecolabelling can, by agreement, approve that the requirement is documented if the production company makes public, for example on its website, how the requirements of the ILO's Conventions are adhered to and controlled by a third party (valid certificate), or other documentation which shows that the requirement is fulfilled.

If the producer is currently involved in a process to become SA8000 certified, a licence can be awarded under certain conditions. The last report from the certifying body, including an action plan with given deadlines, must be submitted for evaluation. The Nordic Ecolabel licence can be withdrawn if the licensee no longer fulfils the SA8000 requirements or does not meet the given deadlines in any action plans.

7 Requirements for environmental and quality assurance

In order to ensure that the requirements in this document are fulfilled, the producers or any distributors/importers shall have an adequate environmental and quality assurance system. This is particularly important to ensure that the requirements are adhered to throughout the validity of the licence, and is a standard requirement in Nordic Ecolabelling's criteria.

M1 Legislation and regulations

The licensee must guarantee adherence to safety regulations, working environment legislation, environmental legislation and conditions/concessions specific to the operations at all sites where the Nordic Ecolabelled product is manufactured.

No documentation is required, but Nordic Ecolabelling may revoke the licence if the requirement is not fulfilled.

M2 Nordic Ecolabel licence person

The company shall appoint a person responsible for ensuring the fulfilment of Nordic Ecolabel requirements, and a contact person for communications with Nordic Ecolabelling.

- A chart of the company's organisational structure detailing who is responsible for the above.

M3 Documentation

The licensee must be able to present a copy of the application, as well as factual and calculation data that supports the documents submitted on application (including test reports, documents from suppliers, etc.).

☺ Checked on site.

M4 Planned changes

Written notice must be given to Nordic Ecolabelling of planned changes that have a bearing on Nordic Ecolabel requirements.

☒ Procedures detailing how planned changes are handled.

M5 Unplanned nonconformities

Unplanned nonconformities that have a bearing on Nordic Ecolabel requirements must be reported to Nordic Ecolabelling in writing and journalled.

☒ Procedures detailing how unplanned nonconformities are handled.

M6 Traceability

The licensee must have a traceability system for the production of the Nordic Ecolabelled textile, hide and/or leather.

☒ Description of/procedures for the fulfilment of the requirement.

M7 Take-back system

Relevant national regulations, legislation and/or agreements within the sector regarding the recycling systems for products and packaging shall be met in the Nordic countries in which the Nordic Ecolabelled products are marketed.

☒ Valid certificate which shows which take-back schemes the company has agreements with.

M8 Marketing

Marketing of the Nordic Ecolabelled textiles, hides/skins and leather must comply with “Regulations for the Nordic Ecolabelling of products” 22 June 2011 or later versions.

☒ Appendix 1 duly completed.

M9 Annual follow-up

An annual follow-up of the Ecolabel criteria shall be performed based on a checklist supplied by Nordic Ecolabelling. The checklist shall be signed by the company’s contact person for the license and submitted to Nordic Ecolabelling.

8 Future criteria

In future criteria, it will be relevant to look at factors including the following:

- Organic cotton and the organic production of other natural fibres

- Genetically modified raw materials
- Absolute requirements for the consumption of energy and water during the wet treatment of fibres
- Requirements regarding certification in accordance with standards for the sustainable use of renewable materials (viscose, bamboo)
- Requirements for energy consumption during the production of fibres.