

# Begleitdokument zur Überarbeitung und Weiterentwicklung der Umweltkriterien in der Produkt- gruppe Bekleidung und Textilien im Rahmen des BMZ-Sektorvorhabens „Nachhaltigkeitsstandards und öffentlich-private Verantwortung“

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## Einleitung

Die Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH setzt im Auftrag des Bundesministeriums für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ) das Sektorvorhaben „Nachhaltigkeitsstandards und öffentlich-private Verantwortung“ um. Ziel des Vorhabens ist es, Verbrauchern, staatlichen Stellen, Unternehmen und der Zivilgesellschaft Zugang zu einer international abgestimmten Methodik zur Messung und Bewertung der Leistungsfähigkeit und Glaubwürdigkeit von Nachhaltigkeitsstandards zu ermöglichen. Die dafür entwickelte Methodik beinhaltet drei Ebenen zur Untersuchung von Sozial- und Umweltsiegeln: Erstens werden die Systemkriterien des Siegels bewertet, zweitens die Umweltkriterien und drittens die Sozialkriterien.

Das der Methodik zugrundeliegende Bewertungsraster fragt für jede Ebene definierte Kriterien ab und hinterlegt diese sowie Möglichkeiten einer unterschiedlichen Erfüllung mit Gewichtungsfaktoren.

Für die Produktgruppen Textilien wurde bereits ein Bewertungsraster entwickelt. Die Bewertungsergebnisse einiger Textil-Standards sind auf dem Verbraucherportal Siegelklarheit.de sowie auf dem Kompass Nachhaltigkeit für öffentliche Beschaffungsverantwortliche veröffentlicht. Die Bewertungskriterien für die Produktgruppe Textilien für den Bereich Umwelt wurden im vorliegenden Vorhaben einer Überarbeitung und Weiterentwicklung unterzogen.

Dafür wurden die bestehenden Textil-Siegel, von denen mehrere seit 2014 überarbeitet wurden, einer vergleichenden Analyse unterzogen. Aktuelle Literatur im Bereich der Textilproduktion wurde recherchiert und für die Weiterentwicklung der Kriterien mit einbezogen. Auch Ergebnisse aus Beschaffungsprojekten des Öko-Instituts flossen in die Analyse mit ein, wie z.B. „UBA Beschaffung 2015 – Erarbeitung wissenschaftlicher Grundlagen zur Forcierung der Berücksichtigung von Umweltkriterien bei der Vergabe von Aufträgen durch die öffentliche Hand“ im Auftrag des Umweltbundesamtes, in dem ein Leitfaden für eine nachhaltige Textilbeschaffung der Bundesverwaltung erarbeitet wurde, und das Projekt „Biodiversitätskriterien in der Beschaffung und im Bauwesen – Machbarkeitsstudie & Maßnahmenpläne“ im Auftrag des Bundesamtes für Naturschutz.

Das hier anschließende Begleitgutachten ist in englischer Sprache verfasst und fasst die Hintergründe und Überlegungen zu den einzelnen Kriterien zusammen, die jeweils der im Anschluss dokumentierten Entscheidung zugrunde lagen.





## 1. Chemicals

Globally, it is estimated that around 100,000 chemicals are in use, though there is no certainty about the exact number, and the regional use and presence of chemicals can differ substantially. While the inventory for the Toxic Substances and Control Act (TSCA) in the USA lists about 85,000 substances, the Chinese IECSC inventory entails about 45,000 chemicals, and the most recent version of the updated list under the EU's REACH legislation contains 21,551 substances.

In textile production, there are large quantities of substances included, often also as auxiliary or process chemicals that do not or only as residues remain in the final article.

### 1.1. Chemical use

#### 1.1.1. **RENAME: Chemical use**

We suggest to rename the criteria: "Does the standard includes criteria on the efficiency of chemical use?" The general question "Does the standard include criteria on chemical use?" is not constructive since all standards address the use of chemicals in textile production. The documentation of the chemical use is a prerequisite for all further criteria.

Instead, a possibility would be to address the efficiency in chemical use. This aspect is only addressed by standards that audit single production sites.

Besides we suggest to relocate the criteria either to environmental management or at the end of the group "Chemicals", otherwise it would be very prominent on the first place. Furthermore we suggest lowering the weight of the criteria to 5%.

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**Criteria name:** Efficient chemical use

**Criteria question:**

Does the standard include criteria on the efficiency of chemical use?

**Guidance:**

Criteria on the efficiency in chemical use can refer to establish a management system with concrete reduction targets that are assessed and further improved.

**Degree of Intensity (DoI):**

None

**Weight / DoI Scores:** See excel document

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#### 1.1.2. **MIK – MINIMUM CRITERION: Hazardous chemicals - substances of very high concern under REACH**

In addition to CMR substances, the REACH Candidate List also includes substances with endocrine disrupting properties and substances that are persistent, bioaccumulative and toxic (so-called PBT substances). The substances displaying PBT and endocrine disrupting properties are not covered by the H statements addressed further below. Therefore, this criterion is important as a minimum criterion prohibiting substances of very high concern.

The original criterion had two Degrees of Intensity “Restrict use” and “Prohibit use”. For the revision, a deletion of the Dols was proposed. During the stakeholder workshop,<sup>1</sup> the following Degrees of Intensity (DoI) were discussed:

- 1 “Prohibit use, except where no substitute is available” and
2. “Prohibit use for all processes”.

The formulation of DoI1 would imply that the standard describes a process how to decide if an exemption is justified to use an SVHC in a specific process or describe such exemptions/derogations. Another way for restricting use is realized in e.g. the bluesign standard that allows restricted use for so called grey chemicals. According to the current assessment of the bluesign standard under Siegelklarheit, bluesign has listed the SVHC as black chemicals with usage ban.

The table below compiles how the different standards approach the REACH candidate list. To summarize:

- The EU Ecolabel prohibits SVHC for substances that are present in the final product. Further SVHC that are applied as process chemicals are additionally prohibited.

The EU Ecolabel describes the derogation for use of N,N-Dimethylacetamide (CAS 127-19-5) for the manufacture of elastane and acrylic and sets limit values for different end products (see Table 1-1). (derogation for N,N-Dimethylacetamide).

- The formulation used by GOTs is considered prohibiting the SVHC for all processes.
- The bluesign standard or STeP by OEKO-TEX/Oeko-Tex Made in Green does not explicitly prohibit the substances from the REACH candidate list. However they take into account the currently listed SVHC substances for a usage ban. In the bluesign standard, an exceptional use if formulated for N,N-Dimethylacetamide as well.

The current assessment under Siegelklarheit grants bluesign and Oeko-Tex Made in Green the full point score (prohibit use). Thus, it is acknowledged that SVHC under REACH/ the REACH Candidate List is not nominated as an explicit requirement however the substances (relevant for the textile sector) are included in the restricted substance list.

The guidance of the criterion should address how those standards should be assessed which do not explicitly prohibit SVHC REACH Candidate list but - as a result of a comprehensive risk assessment - restrict the SVHC substances. We propose that the lowest degree of intensity is given in this case.

Furthermore the sentence on cleaning agents (“In the case of standards for cleaning agents, risk based approaches such as HERA (Human and Environmental Risk Assessment) are recognized as restricted use (DoI "Restrict use") should be deleted.

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**Criteria name:** Hazardous chemicals - substances of very high concern under REACH

**Criteria question:** Does the standard include criteria on chemicals listed on the REACH Candidate List as substances of very high concern?

**Guidance:**

Refers to requirements that restrict or prohibit the use of substances of very high concern according to REACH. Refers to the authentic version of the Candidate List published by ECHA. For as-

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<sup>1</sup> The stakeholder workshop mentioned in this document was held by GIZ on 23. October in Berlin to discuss the MIKs and the comments received in the online consultation (<https://www.ssct-revision.org/ecm-politik/nachhaltigkeit/de/draftbill/51435>).

sessing this criterion, it has to be taken care that standards prohibit the SVHC of the Candidate list but allow specific derogations/deviations/exceptions for a defined use.

If a standard does not explicitly prohibits SVHC/ substances of the REACH Candidate list but as a result of a risk assessment lists these substances for these substances for usage restrictions or an excepted use then the lowest DoI should be given.

**Degree of Intensity (DoI):**

Prohibit use, except for defined derogations

Prohibit use for all processes

**Weight / DoI Scores:** no modification

**Table 1-1: Criteria regarding substances of very high concern under REACH in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on SVHC / REACH candidate list
Blauer Engel Textiles DE-UZ 154 (Edition July 2017)	<p>“3.6 General requirements</p> <p>3.6.1 General exclusion of substances with certain properties</p> <p>The following requirements apply to dyes and textile auxiliaries:</p> <p>a) Dyes and textile auxiliaries must not contain any substances which are identified as particularly alarming under the European Chemicals Regulation REACH (1907/2006/EC)<sup>15</sup> and which have been incorporated into the list drawn up in accordance with Article 59, Paragraph 1 of the REACH Regulation (so-called "list of candidates"). The version of the list of candidates at the time of application is valid<sup>16</sup>. If the substance is part of a preparation (a mixture), its concentration must not exceed 0.10% by mass. If a stricter, more specific concentration limit is specified for a substance in a mixture in the CLP Regulation (EC/1272/2008) then this is valid.”</p>
bluesign® criteria for chemical assessment (Homologation) (Version 2.0   April 01, 2014)	<p>The current assessment of bluesign® product on siegelklarheit.de explains:</p> <p>“Auszug aus dem Standard</p> <p>Reach Chemicals are considered in homologation (chemical assessment) and RSL.”</p> <p>The full point score is given:</p> <p>“Grad des Anspruchs: [DoI given:] Verwendung verboten 100”</p> <p>“5.2.2 Information on ecological and toxicological properties of a mixture</p> <p>There are many parameters that may be required during the homologation process. The parameters listed below are used to review the toxicological, ecological and physicochemical properties of a mixture. A combination of certain core parameters influences the final rating score of a mixture. Those parameters that are not utilized for purposes of a rating procedure are used for example for the determination of an ecological impact (e.g. total nitrogen and phosphorus calculations in the wastewater).</p> <ul style="list-style-type: none"> <li>· Biodegradability</li> <li>· [...]</li> </ul> <p>6 Hazard assessment</p> <p>6.1 Hazard Identification</p>

[...]  
Environmental toxicity and fate

- persistence
- bioaccumulation
- biodegradation

[...]"

EU Ecolabel for textile products  
(2014/350/EU)

“Criterion 13. Restricted Substance List (RSL)  
13(b) Substances of Very High Concern (SVHC's)  
The final product including any component or accessory shall not, unless specifically derogated, contain substances that: (i) Meet the criteria in Article 57 of Regulation (EC) No 1907/2006; (ii) Have been identified according to the procedure described in Article 59(1) of Regulation (EC) No 1907/2006 which establishes the candidate list for substances of very high concern. This applies to substances used to impart function to the final product and to substances that have been intentionally used in production formulas. No derogation shall be given concerning substances that meet either of these two conditions, and which are present in a textile article, or in any homogeneous part of a complex textile article, in concentrations higher than 0,10 % (weight by weight).

Appendix 1 EU ECOLABEL TEXTILE RESTRICTED SUBSTANCE LIST

(f) Restrictions applying to all production stages

(i) Substances that have been entered onto the ECHA Candidate List.

Applicability All products.

SVHC's that have been identified according to Article 59 of Regulation (EC) No 1907/2006 (REACH) as meeting the criteria of Article 57 of that Regulation and are listed in the candidate list for eventual inclusion in Annex XIV of REACH ('Candidate List') that is current at the time of application shall not be present in the final product, either or to impart function to the final product or that have been intentionally used during production stages, unless a derogation has been approved. The current Candidate List can be consulted at: <http://echa.europa.eu/web/guest/candidate-list-table> No derogation from the exclusion in this criterion shall be given concerning substances identified as SVHC's and which have been entered onto the list foreseen in Article 59 of Regulation (EC) No 1907/2006, and which are present in the article or in any homogenous part of it in concentrations of more than 0,10 %.

Limit values n/a

Verification requirements: Declaration of compliance by each production stage and their chemical suppliers. [...]

Substances of Very High Concern (SVHC's)

Auxiliaries

(iv) Auxiliaries used in preparations and formulations. Applicability: All products.

The following substances shall not be used in any preparations or formulations used for textiles and are subject to limit values for the presence of substances on the final product: Nonylphenol, mixed isomers 25154-52-3 4-Nonylphenol 104-40-5 4-Nonylphenol, branched 84852-15-3 Octylphenol 27193-28-8 4-Octylphenol 1806-26-4 4-tert-Octylphenol 140-66-9 Alkylphenolethoxylates (APEOs) and their derivatives: Polyoxyethylated octyl phenol 9002-93-1 Polyoxyethylated nonyl phenol 9016-45-9 Polyoxyethylated p-nonyl phenol 26027- 38-3

25 mg/kg sum total

Verification: Final product testing is to be carried out as specified for alkyphenols.  
Test method: Solvent extraction followed by LCMS

The following substances shall not be used in any textile preparations or formulations: 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), diethylene triamine penta acetate (DTPA) 4-(1,1,3,3-tetramethylbutyl)phenol 1-Methyl-2-pyrrolidone Nitrilotriacetic acid (NTA)

n/a

Verification: Declaration of non-use from the chemical suppliers supported by SDS for all production stages.

(g) Restrictions applying to the final product

(i) Candidate List SVHC's that are derogated. Applicability: Elastane, acrylic N,N-Dimethylacetamide (127-19-5)

The following limit values apply to end products containing elastane and acrylic:  
Verification: Final product testing Test method: Solvent extraction, GCMS or LCMS — Products for babies and children under 3 years old 0,001 % w/w — Products that are in direct contact with the skin 0,005 % w/w — Garments with limited skin contact and interior textiles 0,005 % w/w

Verification: Final product testing Test method: Solvent extraction, GCMS or LCMS”

Fairtrade-Textilstandard „Anhang 1 Liste verbotener Substanzen für Textilien

(Aktuelle Fassung  
22.03.2016\_v1.0)

Diese Liste beinhaltet Substanzen, die in der Produktion von Fairtrade-Textilien nicht erlaubt sind. Produktion bezieht sich auf alle Aktivitäten, die die Unternehmen, die nach dem Fairtrade-Textilstandard zertifiziert sind, betreiben, wie z. B. Erntenachbehandlung, Färben, Produktionsprozesse, Lagerung und Transport. Der Einsatz dieser Substanzen ist untersagt, um negative Auswirkungen auf die Gesundheit der Arbeiterinnen und Arbeiter sowie auf die Umwelt zu mindern.

Die Liste enthält besonders besorgniserregende Stoffe (substances of very high concern – SVHC), zu denen krebserregende Stoffe sowie Substanzen zählen, die gemäß aktuellem wissenschaftlichem Stand für Menschen gesundheitsschädlich sind und deren Reproduktion gefährden. Sie können auch schädliche Auswirkungen auf die Umwelt haben. Die Liste ersetzt die Liste der verbotenen Materialien des Fairtrade-Händlerstandards für Betriebe, die gemäß dem Fairtrade-Textilstandard zertifiziert sind.“

Global Organic Textile  
Standard – GOTS  
(Version 5.0)

“2.3. General requirements for chemical inputs in all processing stages

2.3.1. Prohibited and restricted inputs

The following table lists chemical inputs that may (potentially) be used in conventional textile processing but that are explicitly banned or restricted for environmental and/or toxicological reasons in all processing stages of GOTS Goods.

[excerpt from table]

Substances and preparations having restrictions in usage for application in textiles with a recognised internationally or nationally legal character

The same restrictions apply, provided the substances and preparations are not already prohibited or have stricter restrictions criteria according to this Standard. Substances listed in regulation EC 552/2009 (amending regulation EC 1907/2006 (REACH), annex XVII), and the ‘candidate list of substances of very high concern

	for authorisation' of the European Chemicals Agency (ECHA) are prohibited.”
Naturland Richtlinie Verarbeitung – Ergänzung für Textilien (Stand 05/2017)	<p>„4. Unzulässige Verarbeitungshilfsmittel Generell sind alle Substanzen und Zubereitungen unzulässig, die nach anerkannter internationaler oder nationaler Gesetzgebung verboten sind.<sup>1</sup></p> <p>1 In der Verordnung EC 552/2009 (ergänzend zur Verordnung EG 1907/2006 (REACH), Anhang XVII), der „Kandidatenliste der besonders besorgniserregenden Stoffe für die Zulassung“ der Europäischen Agentur für Chemische Stoffe (ECHA) gelistete Substanzen sind verboten.“</p>
STeP by OEKO-TEX® (Edition 02.2018)	<p>“4.1.1.4 Communication</p> <p><b>There are also mandatory legal requirements for communicating certain contents of specific chemicals to the buyer. This is, for example, the case for chemicals which are listed as candidates for eventual authorisation in the legislation for chemicals in the European Union (REACH, see ANNEX J) and are contained in articles in an amount exceeding 0.1 w-%. This is a legal requirement for business within Europe and for imports into the European Union.</b></p> <p>The current assessment of OEKO-TEX Made in Green on siegelklarheit.de explains: “Auszug aus dem Standard: RSL for Ökotex 100 and STeP covers all Reach chemicals, candidates are tested and if necessary added to RSL Referenzdokumente: [C]ustomer information Ökotex and Reach conformity” The full point score is given: “Grad des Anspruchs: [Dol given:] Verwendung verboten 100”</p>

Source: Oeko-Institut

### 1.1.3. Use of biocides (finishing process)

The criterion is still up to date and can be kept as it is.

### 1.1.4. Use of formaldehyde

The criterion is still up to date and can be kept as it is.

### 1.1.5. Use of nanomaterials

The issue of nanomaterials is addressed by standards. Therefore we propose to keep the criterion as it is.

### 1.1.6. Use of flame retardants

The criterion is relevant. We propose to keep it unchanged.



### 1.1.7. **NEW: Use of per- and polyfluorinated substances**

We propose a new criterion on per- and polyfluorinated substances as they are very persistent substances and remain in the environment.

---

**Criteria name:** Use of per- and polyfluorinated substances

**Criteria question:** Does the standard include criteria on the use of per- and polyfluorinated substances?

**Guidance:**

Refers to requirements on per-/polyfluorinated substances.

**Degree of Intensity (DoI):**

Not relevant

Restrict use

Prohibit use

**Weight / DoI Scores:** See excel document

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### 1.1.8. **MIK – MINIMUM CRITERION: Biodegradability of substances**

This criterion "Biodegradability of substances" was proposed as a new minimum criterion because biodegradability is an important parameter for determining an ecological impact. If a substance is not biodegradable, it will persist and, if further emitted, accumulate in the environment.

The table below shows how different standards approach the issue of biodegradability.

To summarize, a number of standards refer to biodegradability. However there is no standard screened for this revision that generally requires biodegradability for all substances / preparations used. The EU Ecolabel refers to processes or substance groups that must be readily (and in some cases inherently) biodegradable.

Some standards such as e.g. bluesign, GOTS or STeP by OEKO-TEX® assess the ecological risk of a preparation/mixture based on the correlation of biodegradation and aquatic toxicity. For example GOTS has defined the following requirement: "All preparations applied must further comply with following requirements: aquatic toxicity - LC50, EC50, IC50 > 1mg/l; relation of biodegradability / eliminability to aquatic toxicity only allowed if <70% and >100mg/l; >70% and >10mg/l; >95% and >1mg/l."

The original criterion did not contain DoI. For the first proposal in the revision, degrees of intensity were proposed ("Claim biodegradability of substances/preparations for some applications" and "Claim biodegradability of Substances/preparations for all applications"). However, after the consultation and the workshop we do not suggest following our first proposal since we cannot comprehensively list the processes that should be at least addressed. Furthermore, we cannot decide scientifically sound whether one of the approaches of e.g. the EU Ecolabel and standards like e.g. GOTS has a higher impact respectively results in lower environmental burden.

So we propose to refer in the guidance to different options to address biodegradability.

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**Criteria name:** Biodegradability of substances

**Criteria question:** Does the standard include criteria on biodegradability of substances?

**Guidance:**

Biodegradability can be claimed in specific processes (e.g. the sizing and spinning) or substance

groups (e.g. textile auxiliaries such as surfactants, softeners and complexing agents) or by addressing biodegradability in combination with aquatic toxicity

For biodegradability, there are recognized test methods e.g. by OECD. E.g. per-/polyfluorinated chemicals have a low biodegradability.

**Degree of Intensity (DoI):**

(None)

**Weight / DoI Scores:** See excel document

**Table 1-2: Criteria regarding biodegradability of substances in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on biodegradability of substances
Blauer Engel Textiles DE-UZ 154 (Edition July 2017)	<p>The requirements on sizing and spinning solution additives are the same as in the EU Ecolabel.</p> <p>“3.6.3 Requirements for the degradability of textile auxiliaries</p> <p>At least 90% by mass of the ingredients of fabric softeners, complexing agents and surfactants must be readily biodegradable under aerobic conditions or inherently biodegradable and/or eliminable in waste water treatment plants. Surfactants must be readily biodegradable under aerobic conditions. All non-ionic and cationic surfactants must also be readily biodegradable under anaerobic conditions.”</p>
Bluesign®criteria a for production sites (Version 2.0)	<p>“5.2.2 Information on ecological and toxicological properties of a mixture</p> <p>There are many parameters that may be required during the homologation process. The parameters listed below are used to review the toxicological, ecological and physico-chemical properties of a mixture. A combination of certain core parameters influences the final rating score of a mixture. Those parameters that are not utilized for purposes of a rating procedure are used for example for the determination of an ecological impact (e.g. total nitrogen and phosphorus calculations in the wastewater).</p> <ul style="list-style-type: none"> <li>· Biodegradability</li> <li>· [...]</li> </ul> <p>6 Hazard assessment</p> <p>6.1 Hazard Identification</p> <p>[...]</p> <p>Environmental toxicity and fate</p> <ul style="list-style-type: none"> <li>· persistence</li> <li>· bioaccumulation</li> <li>· biodegradation</li> <li>· [...]</li> </ul> <p>8.2 Ecological properties of a mixture</p> <p>The assessment of ecological risk of a mixture is based on the correlation between biodegradation and aquatic toxicity (Fig. 8.3). Mixtures that have low aquatic toxicity and are readily biodegradable will be rated as blue. A high aquatic toxicity and a low biodegradation degree will lead to a black rating. The grey rating can also be supported by an additional parameter – bacteria toxicity. The aquatic toxicity and biodegradation are used to determine the rating of only those mixtures that are not intended to be fixed on textiles. The ecological impact of chemical products that are intended to be fixed on textiles (e.g.</p>



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dyestuffs, finishing agents, after treatment agents with fibre affinity) is assessed by an on-site inspection. These chemical products are designed to guarantee long-term functionality or colour resistance of the textile, which is equal to inherent low biodegradation behaviour. Biodegradability of a chemical product can be assessed according to the methods: OECD 302 B, OECD 310, OECD 301 A-F or OECD 303 A.”

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EU Ecolabel for  
textile products  
(2014/350/EU)

“Table 6 Derogated hazard classifications by substance group

(iv) Water, dirt and stain repellents H413 — The repellent and its degradation products shall be readily and or inherently biodegradable and non-bioaccumulative in the aquatic environment, including aquatic sediment.

[...]

Appendix 1 EU ECOLABEL TEXTILE RESTRICTED SUBSTANCE LIST

(a) Restrictions applying to fibre and yarn spinning and weaving

(i) Sizing preparations applied to fibres and yarns Applicability: Spinning processes

At least 95 % (by dry weight) of the component substances shall be readily biodegradable. In all cases the sum of each component shall be taken into account.

Readily biodegradable: 70 % degradation of dissolved organic carbon within 28 days or 60 % of theoretical maximum oxygen depletion or carbon dioxide generation within 28 days.

Verification: Declaration from the chemical supplier supported by OECD or ISO test results Test method: OECD 301 A, ISO 7827 OECD 301 B, ISO 9439 OECD 301 C, (2) OECD 301 D, ISO 10708 OECD 301 E, OECD 301 F, ISO 9408,

(ii) Spinning solution additives, spinning additives and preparation agents (including carding oils, spin finishes and lubricants) Applicability: Primary spinning processes

At least 90 % (by dry weight) of the component substances shall be readily biodegradable, inherently biodegradable or eliminable in waste water treatment plants. In all cases the sum of each component shall be taken into account.

Readily biodegradable: See definition under (a)(ii) Inherently biodegradable: 70 % degradation of dissolved organic carbon within 28 days or 60 % of theoretical maximum oxygen depletion or carbon dioxide generation within 28 days. Eliminability: 80 % degradation of dissolved organic carbon within 28 days

Verification: Declaration from chemical supplier supported by OECD or ISO test results Test method: See (a)(ii) for readily biodegradable tests. Inherently biodegradable tests that are accepted: ISO 14593 OECD 302 A, ISO 9887, OECD 302 B, ISO 9888 OECD 302 C, Tests for eliminability: OECD 303A/B ISO 11733 13.6.2014 L 174/71 Official Journal of the European Union EN [...]

(e) Restrictions applying to finishing processes

(iii) Water, stain and oil repellent treatments, Applicability: Where applied to provide the function.

Fluorinated water, stain and oil repellent treatments shall not be used. These shall include perfluorinated and polyfluorinated treatments. Non-fluorinated treatments shall be readily biodegradable and non-bioaccumulative in the aquatic environment including in aquatic sediment. They shall additionally

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comply with fitness for use criterion 25(a).

Verification: Declaration of non-use supported by SDS for the repellents used to be provided by finishers. Test method: n/a [...]

(f) Restrictions applying to all production stages

Surfactants, softeners and complexing agents

- (ii) All surfactants, fabric softeners and complexing agents Applicability: All wet processes

At least 95 % by weight of fabric softeners, complexing agents and surfactants shall be: — readily biodegradable under aerobic conditions or — inherently biodegradable and/or — eliminable in wastewater treatment plants. The latest revision of the Detergents Ingredients Database should be used as a reference point for biodegradability: [http://ec.europa.eu/environment/ecolabel/documents/did\\_list/didlist\\_part\\_a\\_en.pdf](http://ec.europa.eu/environment/ecolabel/documents/did_list/didlist_part_a_en.pdf)

n/a Verification: Declaration chemical supplier supported by SDS and/or OECD or ISO test results Test method: See sizing and spinning agents (Appendix 1(a) i/ii)

- (iii) Non-ionic and cationic surfactants Applicability: All wet processes

All non-ionic and cationic surfactants must also be readily biodegradable under anaerobic conditions The detergents ingredients database should be used as a reference point for biodegradability: [http://ec.europa.eu/environment/ecolabel/documents/did\\_list/didlist\\_part\\_a\\_en.pdf](http://ec.europa.eu/environment/ecolabel/documents/did_list/didlist_part_a_en.pdf)

Verification: Declaration from SDS and/or chemical supplier supported by OECD or ISO test results Test method: EN ISO 11734, ECETOC No 28 OECD 311 13.6.2014 L 174/75 Official Journal of the European Union”

Fairtrade-  
Textilstandard  
(Aktuelle Fas-  
sung  
22.03.2016\_v1.  
0)

No requirement on biodegradability

Global Organic  
Textile Standard  
– GOTS  
(Version 5.0)

“All preparations applied must further comply with the following requirements:  
Relation of biodegradability / eliminability to aquatic toxicity: Only allowed, if:  
< 70% and > 100 mg/l  
> 70% and > 10 mg/l  
> 95% and > 1 mg/l”

STeP by OEKO-  
TEX®  
(Edition  
02.2018)

“D5 Non-recommended hazardous processes

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Textile facilities may use hazardous chemicals in pre-treatment, dyeing, finishing and other processes that have a negative impact. Therefore, it is recommended to avoid certain products/processes or to minimise the use of such products/processes:

- Potentially hazardous surfactants should be replaced with biodegradable/bioeliminable tensides and complexing agents in pre-treatment and dyeing processes. Non-biodegradable and non-bioeliminable Tensides and complexing agents should be avoided.
- The use of antifoaming agents with high potential impact (e.g. PBT Persistent Bioaccumulating & Toxic) on wastewater should be avoided or minimized by selecting biodegradable/bioeliminable products.

Annex L1 Chemical Management

[Description of the assessment on hazard profile and biodegradability]

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Source: Oeko-Institut

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### 1.1.9. MIK – MINIMUM CRITERION: Chemicals harmful to the environment

Generally, hazardous effects on the aquatic environment due to the use of chemicals in the production and processing of fibres are a key life cycle environmental impact factor. Substances that are hazardous to the aquatic environment are classified by H400 - Very toxic to aquatic life, H410 - Very toxic to aquatic life with long-lasting effects and H411 - Toxic to aquatic life with long-lasting effects. The background for listing the substance properties is that a ban of a single substance is no guarantee for an environmentally friendly substitution of this substance.

Therefore this criterion is (still) considered to be an important minimum criterion and no modification for the degree of intensity was proposed; the minimum criterion relates to the lowest degree of intensity:

- Prohibit use for some applications
- Prohibit use for all applications
- Prohibit use of additional H statements for all applications

For the guidance not, it was proposed to add an additional explanation that the lowest degree of intensity should also recognize approaches assessing the substances in use taking into account aquatic toxicity via the PEC/PNEC ratio. However during the stakeholder workshop it was agreed not to delete this proposal.

Instead it was discussed to specify processes for derogation where the use of such chemicals is legitimate if certain safeguards (closed system) are upheld so that chemicals are not discharged.

An explicit derogation from the environmental hazard classification is described in the EU Ecolabel and the Blue Angel:

Substance groups that are derogated according to the EU Ecolabel are:

- (i) Dyestuff for dyeing and non-pigment printing: Derogated hazard classifications [...] H411, H412, H413

Derogation conditions: Dyeing processes using reactive, direct, vat, sulphur dyes with these classifications shall meet a minimum of one of the following conditions: — Use of high affinity dyes; — Achievement of a reject rate of less than 3,0 % — Use of colour matching instrumentation; — Implementation of standard operating procedures for the dyeing process; — Use of colour removal to treat wastewater in compliance with criterion 16(a) The use of solution dyeing and/or digital printing are exempted from these conditions.

- (ii) Flame retardants: Derogated from H411, H412, H413 in cases where the product must be intended to be used in applications in which it is required to meet fire protection requirements in ISO, EN, Member State or public sector procurement standards and regulations. The product shall meet the requirements for durability of function (see criterion 25)

- (iii) Optical brighteners: Derogated from H411, H412, H413 in cases if optical brighteners may only be applied in the following cases: — In white coloured printing; — To achieve enhanced brightness in uniforms and work wear; — As additives during the production of polyamide and polyester with a recycled content.

[...]²

Other residual substances that may be found on the final product

- (iv) Auxiliaries comprising: Carriers, Levelling agents, Dispersing agents, Surfactants, Thickeners, Binders ([...] H411, H412, H413), Recipes shall be formulated using automatic dosing systems and processes shall follow standard operating procedures.

The Blue Angel only describes derogations (or deviations according to the BE)

- Auxiliaries including carriers, fastness enhancers, levelling agents, dispersing agents, surfactants, thickeners, binding agents: Hazard classification affected by the exemption [...] H411, H412, H413; under exemption conditions it is stipulated that the recipes must be formulated using automatic metering systems and the process must follow standard operating procedures.
- Dyes for dyeing and non-pigment printing: Hazard classification affected by the exemption [...] H411, H412, H413; as exemption conditions it is stipulated that dyeing processes using reactive, direct, vat and sulphur dyes with these classifications must meet at least one of the following conditions:
  - Use of high affinity dyes
  - Achievement of a reject rate of less than 3.0%
  - Use of colour matching instrumentation
  - Use of standard operating procedures for the dyeing process
  - Use of colour removal to treat waste water (see criteria 16a))
  - Solution dyes and/or digital printing are excluded from these conditions.

<sup>2</sup> As the EU Ecolabel prohibits additional environmental H statements, H412 and H413 further derogations are defined that are however not relevant here.

- Dye houses and printers must use dust free dye formulations or automatic dosing and dispensing of dyes to minimise worker exposure.

The description of these substance groups can be taken over for the guidance. However it has to be noted that these substance group are described in the EU Ecolabel and the Blue Angel. The assessment as described in standard such as e.g. bluesign taking into account aquatoxicity in correlation to biodegradation should be reflected in the guidance. We therefore propose to include in the guidance an explanation on how to deal with this approach such as: If the standard requires an ecological risk assessment of the substances in use, e.g. assessing a correlation between biodegradation and aquatic toxicity then the lowest DoI should be given.

**Criteria name:** Chemicals harmful to the environment

**Criteria question:** Does the standard include criteria on H statements H400, H410, H411?

**Guidance:**

Refers to chemicals classified as environmental hazards statements according to GHS (Globally Harmonized System of Classification and Labelling of Chemicals).

The following substance groups may be exempted from the requirement if further requirements on the usage conditions are described: Dyestuff for dyeing and non-pigment printing and auxiliaries including carriers, fastness enhancers, levelling agents, dispersing agents, surfactants, thickeners, binding agents or clearly defined derogations for e.g. optical brighteners.

If the standard requires an ecological risk assessment of the substances in use, e.g. assessing a correlation between biodegradation and aquatic toxicity then the lowest DoI should be given.

**Degree of Intensity (DoI):**

1. Prohibit use, except for the substance groups listed in the guidance
2. Prohibit use
3. Prohibit use of the additional H statement H412

**Weight / DoI Scores:** See excel document

**Table 1-3: Criteria regarding aquatoxicity / environmental classification in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on aquatoxicity / environmental classification
bluesign® criteria for chemical assessment (Homologation) (Version 2.0   April 01, 2014)	<p>“5.2.2 Information on ecological and toxicological properties of a mixture</p> <p>There are many parameters that may be required during the homologation process. The parameters listed below are used to review the toxicological, ecological and physicochemical properties of a mixture. A combination of certain core parameters influences the final rating score of a mixture. Those parameters that are not utilized for purposes of a rating procedure are used for example for the determination of an ecological impact (e.g. total nitrogen and phosphorus calculations in the wastewater).</p> <p>[...]</p> <ul style="list-style-type: none"> <li>· Aquatic toxicity (fish, daphnia, algae, bacteria)</li> </ul> <p>[...]”</p>
Bluesign®criteria for production sites (Version 2.0)	<p>“8.2 Ecological properties of a mixture</p> <p>The assessment of ecological risk of a mixture is based on the correlation between biodegradation and aquatic toxicity (Fig. 8.3). Mixtures that have low</p>

aquatic toxicity and are readily biodegradable will be rated as blue. A high aquatic toxicity and a low biodegradation degree will lead to a black rating. The grey rating can also be supported by an additional parameter – bacteria toxicity. The aquatic toxicity and biodegradation are used to determine the rating of only those mixtures that are not intended to be fixed on textiles. The ecological impact of chemical products that are intended to be fixed on textiles (e.g. dye-stuffs, finishing agents, after treatment agents with fibre affinity) is assessed by an on-site inspection. These chemical products are designed to guarantee long-term functionality or colour resistance of the textile, which is equal to inherent low biodegradation behaviour. Biodegradability of a chemical product can be assessed according to the methods: OECD 302 B, OECD 310, OECD 301 A-F or OECD 303 A.”

EU Ecolabel for textile products  
(2014/350/EU)

“Criterion 14. Substitution of hazardous substances used in dyeing, printing and finishing  
[...]  
14(a) Hazard classification restrictions  
The hazard classifications restricted are listed in Table 5. The most recent classification rules adopted by the European Union shall take precedence over the listed hazard classifications and risk phrases. Applicants shall therefore ensure that any classifications are based on the most recent classification rules. The use of substances or mixtures which change their properties upon processing (e.g., become no longer bioavailable, undergo chemical modification) so that the identified hazard no longer applies are exempted from the above requirements. This shall include polymers that have been modified to incorporate a function and monomers or additives which become covalently bonded with polymers.  
Table 5 Restricted hazard classifications and risk phrases and their CLP categorisation  
[...]  
Hazardous to the aquatic environment  
Category 1 and 2  
H400 Very toxic to aquatic life (R50)  
H410 Very toxic to aquatic life with long-lasting effects (R50/53)  
H411 Toxic to aquatic life with long-lasting effects  
Category 3 and 4  
H412 Harmful to aquatic life with long-lasting effects (R52/53) H413 May cause long-lasting effects to aquatic life (R53)  
[...]

Global Organic Textile Standard – GOTS  
(Version 5.0)

“2.3. General requirements for chemical inputs in all processing stages  
2.3.1. Prohibited and restricted inputs  
The following table lists chemical inputs that may (potentially) be used in conventional textile processing but that are explicitly banned or restricted for environmental and/or toxicological reasons in all processing stages of GOTS Goods. It is not to be seen as a comprehensive and inclusive list of all chemical inputs that are prohibited or restricted under GOTS. Prohibition or restriction of substance groups or individual substances that are not explicitly listed in this chapter may further result from chapter 2.3.2 ‘Requirements related to hazards and toxicity’ or from other criteria of this Standard.  
[...]



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Inputs which are classified with specific hazard statements / risk phrases related to environmental hazards

Prohibited are:

- substances which are classified with any of the following hazard statements / risk phrases, if applied as direct input

- preparations which are classified with any of the following hazard statements / risk phrases

a) in accordance with the codification system of the Global Harmonized System (GHS) as published by the United Nations, annex 3:

H400: Very toxic to aquatic life

H410: Very toxic to aquatic life with long lasting effects

H411: Toxic to aquatic life with long lasting effects

For inputs assessed on basis of GHS, where the implementation system does not provide for the codified H-statements, the corresponding hazard classes and categories of GHS, annex 3 apply. For inputs assessed according to the 'risk phrase' classification (Directive 67/548EEC amended and repealed by Regulation EC 1272/2008) the equivalent risk phrases apply.

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Source: Oeko-Institut

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#### **1.1.10. MIK – MINIMUM CRITERION: Chemicals harmful to human health-textile**

Substances that are hazardous to human health can affect workers, the general population via the environment if the effluent being released into nature and last but not least the consumer.

As for the chemicals on environmental classification, the general remarks on the limited effect of lists on restricted substance and possibly regrettable substitution is true for this criterion as well.

Regarding the list of human health hazards, it was noted that it is not clear why H361 (Suspected of damaging fertility or the unborn child) is listed whereas other H statements of CMR Category 2 (suspected of ...) are not. Besides, regarding specific organ toxicity, H370 (Causes damage to organs) and H371 (May cause damage to organs) are listed but 372 (Causes damage to organs through prolonged or repeated exposure) is not though a prolonged or repeated exposure is a realistic exposure scenario for workers or consumers.

However, an adaption of the H statements was not recommended for reasons of continuity. E.g. the version of the GOTS standard of 01 March 2017 apparently copied the list of H statements of Siegelklarheit in its criterion 2.3.2. Requirements related to hazards and toxicity. Furthermore, the H statements on respiratory and skin sensitization which is relevant from a consumer point of view, have derogations e.g. under the EU ecolabel und the Nordic Swan for dyes and pigments. GOTS only prohibits disperse dyes classified as sensitizing / allergenic.

In comparison to the criterion on the environmental criteria, it was suggested in the workshop to define substance groups where the use of such chemicals is legitimate if certain safeguards (closed system) are upheld so that chemicals are not discharged.

As proposed for the substance groups derogated from the environmental classification described in the EU Ecolabel and the Blue Angel, the same proposal is followed here.

**Criteria name:** Chemicals harmful to human health-textile

**Criteria question:** Does the standard include criteria on H statements H300, H310, H330, H340, H341, H350, H351, H360, H361, H370, H371?

**Guidance:**

Refers to chemicals classified as health hazards statements according to GHS (Globally Harmonized System of Classification and Labelling of Chemicals).

The following substance groups may be exempted from the requirement if further requirements on the usage conditions are described: Dye stuff for dyeing and non-pigment printing and auxiliaries including carriers, fastness enhancers, levelling agents, dispersing agents, surfactants, thickeners, binding agents.

**Degree of Intensity (Dol):**

1. Prohibit use, except for substance groups listed in guidance
2. Prohibit use
3. Prohibit use of additional H statements

**Weight / Dol Scores:** See excel document

#### 1.1.11. MIK – MINIMUM CRITERION: Chemical residues

The testing of chemical residues is a common approach of product standard to ascertain quality. Residues from (production) processes or caused by contamination from the manufacturing of other products using the same machinery or production facility, contaminations from transport (e.g. biocides used in transport containers) or from packaging (e.g. printing inks migrating through the packaging materials). Therefore this criterion is suggested to be kept as a minimum criterion.

In the criterion so far, the Dol made a differentiation between standards where

- Limit values for less or equal than 10 residues are defined or
- Limit values for more than 10 residues are defined.

During the stakeholder workshop it was recommended to request a Restricted Substances List and secondly introduce a set of minimum residues that should be tested e.g. heavy metals.

This proposal was checked. As a result, we found that the term restricted substance is not always used when standards refer to the testing of residues. E.g. the EU Ecolabel compiled a RSL where organotin compounds as biocides used to protect textiles during transportation and storage are restricted; however as verification a declaration of non-use prior to shipping and storage supported by SDS is required.

The testing requirements on the final product were compared for different standards. As a result, different substance groups were identified for where a testing is commonly demanded that are now proposed in the guidance. However, by introducing substance groups instead of single substances, the number of residues in the Dol is reduced because the EU Ecolabel and the Blue Angel do not require very much testing of the final product.

We do not suggest defining limit values in the guidance since limit values are always discussed by experts and there will always be differences between standards which might also be due to different revision cycles.



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**Criteria name:** Chemical residues

**Criteria question:** Does the standard include criteria on testing the final product regarding residues of chemicals?

**Guidance:**

Refers to defining limit values and testing of residues in the final product. The substance groups mostly addressed for testing requirements are alkylphenols, alkylphenolethoxylates, heavy metals, organotin compounds, azo dyes / arylamines, chlorophenole, perfluorinated substances, phthalates, polyaromatic hydrocarbons and on the substance formaldehyde.

**Degree of Intensity (DoI):**

Limit values for some substance groups are defined and require testing

Limit values for all substance groups are defined and require testing

**Weight / DoI Scores:** See excel document

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## 1.2. Handling of hazardous substances

Handling of hazardous substances is quite important in sustainable textile production. Nevertheless for standards that do not certify single production sites (like environmental state labels) it is not possible to address this aspect in an effective manner. Therefore we don't suggest to define a minimum criteria on handling of hazardous substances.

### 1.2.1. Chemicals storage and labelling

It is proposed to keep this criterion as it is.

### 1.2.2. Chemicals selective and targeted application

It is proposed to keep this criterion as it is.

### 1.2.3. **TO BE DELETED:** Training on chemicals handling and exposure

This aspect on handling hazardous substances rather belongs to social criteria. It is currently covered under Ensure and Enhance Health and Safety for Workers in the social criteria set.

Therefore it is proposed to be deleted here.

### 1.2.4. Pollution incidents

This aspect is covered by textile standard. The criterion should be kept as it is.

## 2. Water

### 2.1. Water use

#### 2.1.1. Reduction of water consumption (production phase)

Some process steps in textile production need quite a lot of water. Especially in regions where water is scarce this is problem that has to be addressed. Nevertheless for standards that don't certify single production sites (like environmental labels that cover a wide range of different products) it

isn't possible to address this aspect in an effective manner. Therefore we don't suggest to define a minimum criteria on water use.

Most standards, which do contain criteria concerning water consumption, request a minimization of water use (see Table 2-1). It is therefore suggested to change the DoI Scores from originally 50 - 100 to 25 - 100. In this way standards, which do not certify single production sites, get the same scores as before. Standards, which address the issue are encouraged to not only request a monitoring, but an efficiency improvement at the same time.

**Table 2-1: Criteria regarding water consumption in different textile standards**

<b>Standard (version)</b>	<b>Excerpts / citations from the standard documents on water consumption in the production phase</b>
bluesign®system (Version 1.0)	“The bluesign® system helps optimizing the process efficiency by minimizing both energy and material input. As the first step an evaluation of the available data concerning water, energy, chemicals and raw materials consumption is performed. It is followed by an in-depth analysis and benchmarking of the obtained results against publicly available data and numbers shared by other system partners. Finally, the bluesign® expertise provides the recommendations on the potential improvement of resource efficiency that are supported by the respective BATs.”
Bluesign®criteria for production sites (Version 2.0)	“A manufacturer shall strive for an optimization of quality and quantity of resources.”
Fairtrade- Textilstandard (Aktuelle Fassung 22.03.2016_v1.0)	“Maßnahmen zur Verringerung des Wasserverbrauchs Wenn Ihr Unternehmen Nassaufbereitung anwendet, müssen Maßnahmen zur Verringerung des Wasserverbrauchs und/oder zur Wiederverwendung von Wasser entwickelt werden. Hierzu müssen die erzielten Wirkungen dokumentiert werden.”
Global Organic Textile Standard – GOTS (Version 5.0)	“They must have a written environmental policy and procedures in place to allow monitoring and improving relevant environmental performances in their facilities. Depending on the processing/manufacturing stages performed, the available data and procedures need to include: [...] • data on energy and water resources and their consumption per kg of textile output • target goals and procedures to reduce energy and water consumption per kg of textile output [...] • documentation of staff training in the conservation of water and energy, the proper and minimal use of chemicals and their correct disposal • programme for improvement”
Naturland Richtlinie Verarbeitung – Ergänzung für Textilien (Stand 05/2017)	Dokumentation der Ausbildung des Personals bezüglich sparsamen Umgangs mit Wasser und Energie, richtige und sparsame Verwendung von Chemikalien und ihrer korrekten Entsorgung. Nassverarbeitungsbetriebe müssen die Verwendung von Chemikalien, Energie- und Wasserverbrauch, als auch die Abwasseraufbereitung einschließlich der Entsorgung von Klärschlamm dokumentieren.
STeP by OEKO-	The environmental performance of the facility shall be considered at all time and shall

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TEX® (Edition 02.2018)	focus on the following interests and objectives: [...] - minimisation of water usage by monitoring and controlling resources
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Source: Oeko-Institut

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## 2.2. Wastewater

Wastewater treatment is a very important criterion as hazardous effects on the aquatic environment in the production and processing of fibres is one key life cycle environmental impact factor in textile production.

Therefore within the set of waste water criteria, there is on minimum criterion which was discussed during the stakeholder workshop hold 23. October 2018 in Berlin. The participants stressed that a differentiation should be made between direct discharge and indirect discharge. Bluesign defines both as follows:

- (1) Direct discharge, i.e. wastewater discharged directly into a river or other receiving body. It is normally regulated under national pollutant discharge legislations.
- (2) Indirect discharge, i.e. wastewater that is sent to an industrial or publicly owned WWTP. Discharge to such WWTP is mostly subject to the local authority regulations.

The following Table 2-2 compiles the requirements of different textile standards on wastewater treatment.

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**Table 2-2: Criteria regarding wastewater in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on wastewater
Blauer Engel Textiles DE-UZ 154 (Edition July 2017)	<p>“[...]”</p> <p>3.6.4 Requirements for waste water from the textile finishing process</p> <p>3.6.4.1 Requirements for waste water at the discharge point (direct discharge)</p> <p>Waste water from wet-processing sites (except waste water from water retting of flax and other bast fibres) shall, when discharged to surface waters, not exceed the following limits:</p> <ul style="list-style-type: none"> <li>· COD: 160 mg/l (expressed as an average yearly value),</li> <li>· BSB5: 30 mg/l,</li> <li>· Sulphite: 1 mg/l,</li> <li>· Ammonium nitrogen: 10 mg/l,</li> <li>· Total nitrogen: 20 mg/l,</li> <li>· Phosphorous: total 2 mg/l,</li> </ul> <ul style="list-style-type: none"> <li>• The dye must comply with the following values: Spectral absorption coefficient at: 436 nm (yellow spectral region) 7 m<sup>-1</sup>; 525 nm (red spectral region) 5 m<sup>-1</sup>; 620 nm (blue spectral region) 3 m<sup>-1</sup></li> <li>· Toxicity to fish eggs GEI: 2.</li> <li>· The pH value of the waste water discharged to surface waters must be between 6 and 9 (unless the pH value of the receiving waters is outside this range) and the temperature must be below 35 °C (unless the temperature of the receiving waters is already above this limit).</li> </ul> <p>This requirement shall not apply if it can be proven that the discharge into the</p>

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urban waste water treatment plant has been approved and the urban waste water treatment plant meets at least the requirements of the Council Directive of 21 May 1991 concerning urban waste water treatment (91/271/EEC).

#### 3.6.4.2 Requirements for waste water before mixing (direct and indirect discharge)

The waste water shall not exceed the following values before it is mixed with the other waste water:

- AOX: 0.5 mg/l
- Sulphide: 1 mg/l
- Copper: 0.5 mg/l
- Nickel: 0.5 mg/l
- Total chromium: 0.5 mg/l
- Tin: 2 mg/l
- Zinc: 2 mg/l

Bluesign@criteria for production sites  
(Version 2.0)

### 10.1 Wastewater

#### 10.1.1 General

Industry specific limit values for wastewater quality are provided in the relevant supplementary criteria and shall be fulfilled by the company responsible for direct discharge to the aquatic body (i.e. a system partner and/or the industrial or public wastewater treatment plant (WWTP)).

Within a production site two types of wastewater can emerge:

- industrial (process) water, which results from the production operations, and
- domestic water, which is a non-process related wastewater

Both types of wastewater effluents shall be appropriately treated and disposed of to prevent environmental pollution.

A system partner shall establish and maintain an inventory list of all wastewater sources.

The design of wastewater treatment installations shall ensure that the wastewater treatment is of sufficient quality, that the treatment types were chosen properly and their efficiency is on a high level and that the ecological impact is minimized. If possible and practical, the high-loaded wastewater streams shall be collected and treated separately.

The operator of the wastewater treatment (manufacturer or third party) should possess an appropriate knowledge and technical equipment.

It is strictly forbidden to discharge not used residual amounts of chemical products.

A sludge resulting from the wastewater treatment operations shall be properly handled and managed. The choice of optimal sewage sludge treatment and disposal shall ensure that harmful substances are not transferred to humans or environment. The wastewater resulting from sludge drying operations shall be returned to the WWTP.

Soil and air contamination as well as odor pollution shall be avoided at all times.

Two scenarios of wastewater treatment at the production site apply:

(1) Direct discharge, i.e. wastewater discharged directly into a river or other receiving body. It is normally regulated under national pollutant discharge legislations.

(2) Indirect discharge, i.e. wastewater that is sent to an industrial or publicly owned WWTP. Discharge to such WWTP is mostly subject to the local authority regulations.

#### 10.1.2 Direct discharge

A valid permit from all applicable governing agencies is a prerequisite for direct discharge allowance.

Treated wastewater, that is to be used for irrigation, shall be processed within an approved national irrigation program and following all legal requirements. bluesign technologies reserves the right to restrict the usage of treated wastewater for irrigation purposes or to allow it under the strict, site-specific limit values.

#### 10.1.3 Indirect discharge

In case of the wastewater discharged to the WWTP managed by third party (e.g. a municipal sewage plant), a verification of the external treatment with regard to the operating conditions and compliance to national and local regulations as well as to the bluesign® criteria needs to take place. A wastewater effluent of the production site must not have negative influence on the external wastewater treatment. As the limits required by the industrial or public WWTP are obligatory, there might be a necessity for a pretreatment of wastewater before directing it to the industrial or public WWTP.

#### 10.1.4 Domestic sewage management

Domestic sewage shall be treated using biological treatment before discharging it to the aquatic body. Depending on a company's strategy the following ways of wastewater treatment are acceptable:

- third party treatment in an off-site WWTP
- treatment at an on-site WWTP; domestic water and process water are treated together if the design allows treatment of mixed wastewater.
- on-site septic-tank system; septic-tank effluent is not suitable for direct discharge and should be treated to reduce its polluting potential.

Domestic sewage quality must in every case meet the local discharge criteria, and in case of combined treatment of industrial and domestic wastewater it must meet the bluesign® criteria.

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EU Ecolabel for textile  
products  
(2014/350/EU)

Criterion 16. Treatment of emissions to air and water

#### 16(a) Wastewater discharges from wet processing

Wastewater discharges to the environment shall not exceed 20 g COD/kg textiles processed. This requirement shall apply to weaving, dyeing, printing and finishing processes used to manufacture the product(s). The requirement shall be measured downstream of on-site wastewater treatment plant and/or off-site wastewater treatment plant receiving wastewater from these processing sites. If the effluent is treated on site and discharged directly to surface waters, it shall also meet the following requirements:

- (i) pH between 6,0 and 9,0 (unless the pH of the receiving water is outside this range)
- (ii) temperature of less than 35°C (unless the temperature of the receiving water is above this value)

If colour removal is required by a derogation condition in criterion 14 then the following spectral absorption coefficients shall be met: (i) 436 nm (yellow sector) 7 m<sup>-1</sup> (ii) 525 nm (red sector) 5 m<sup>-1</sup> (iii) 620 nm (blue sector) 3 m<sup>-1</sup>

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<p>Fairtrade-Textilstandard (Aktuelle Fassung 22.03.2016_v1.0)</p>	<p>4.2 Abwasser 4.2.1 Wasseraufbereitung Kern/ Jahr 0 Wenn Ihr Unternehmen Nassaufbereitung anwendet (z. B. beim Entschlichten, Bleichen, Merzerisieren, Färben und anderen bestimmten Methoden, bei denen Abwasser anfällt), muss das Abwasser aufbereitet werden, um die Verschmutzung des Grundwassers zu verhindern und zur Kontrolle der Umweltverschmutzung gemäß der nationalen Gesetzgebung. Eine Abwasseranalyse wird während des üblichen Betriebs regelmäßig durchgeführt und dokumentiert.</p>
<p>Global Organic Textile Standard – GOTS (Version 5.0)</p>	<p>2.4.11. Wastewater treatment Wastewater from all wet processing units must be treated in an internal or external functional wastewater treatment plant before discharged to environment. The applicable national and local legal requirements for waste water treatment - including limit values with regard to pH, temperature, TOC, BOD, COD, colour removal, residues of (chemical) pollutants and discharge routes - must be fulfilled. Wastewater discharges to the environment must not exceed 20 g COD/kg of processed textile (output). For scouring greasy wool an exceptional limit of 45 g COD/kg applies. Treatment of wastewater from water retting of bast fibres must achieve a reduction of COD (or TOC) of at least 95% for hemp fibres and 75% for all other bast fibres. Wastewater discharges to surface waters further must have a pH between 6 and 9 (unless the pH of the receiving water is outside this range) and a temperature of less than 35°C (unless the temperature of the receiving water is above this value). Wastewater analyses must be performed and documented periodically at normal operating capacity.</p>
<p>Naturland Richtlinie Verarbeitung – Ergänzung für Textilien (Stand 05/2017)</p>	<p>8. Abwasserbehandlung und Umweltauflagen Betriebe der Verarbeitungsstufen Vorbehandlung, Färbung und Veredelung müssen als Direkt- oder Indirekteinleiter über eine mindestens zweistufige Kläranlage verfügen. Das ordnungsgemäße Funktionieren dieser Anlagen ist durch Untersuchungen (Sedimentierung, Temperatur, pH-Wert, TOC, BSB, CSB und Rückstände) zu überwachen und zu belegen. Abwasseranalysen müssen regelmäßig bei normaler Betriebskapazität durchgeführt und die Ergebnisse dokumentiert werden. Abwasser aus Nassverarbeitungsbetrieben muss bei der Einleitung in Oberflächengewässer nach der Behandlung im Jahresdurchschnitt einen chemischen Sauerstoffbedarf (CSB) von weniger als 20 g/kg produzierten Textil haben. Wenn das Abwasser im Betrieb behandelt und direkt in Oberflächengewässer eingeleitet wird, sind folgende Werte einzuhalten: pH-Wert von 6 bis 9, Temperatur von weniger als 35°C.</p>
<p>STeP by OEKO-TEX® (Edition 02.2018)</p>	<p>4.2.3 Waste Water and Sludge</p>



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The local and national legal requirements for wastewater treatment shall be fulfilled. The wastewater of textile production processes shall be treated in a purification plant (direct discharge), which can be owned by the factory or be operated as part of a municipal purification plant (indirect discharge). Limit value and grading for facilities with direct discharge see ANNEX G 1; for facilities with indirect discharge see ANNEX G 2. In all cases, legal requirements shall take precedent if the local or national legal requirements for a facility are more stringent than the STeP by OEKO-TEX® criteria. The local and national legal requirements for use of sludge as fertiliser for agricultural use shall be fulfilled. Limit values see ANNEX G8. In all cases, legal requirements shall take precedent if the local or national legal requirements for the facility/application are more stringent than the STeP by OEKO-TEX® criteria. In order to obtain a significant assessment in accordance with the requirements of DETOX TO ZERO by OEKO-TEX®, an annual analysis report of wastewater and where applicable of sludge is required.

Functionality, design and operation of the waste water treatment plant shall be ensured. Sampling and testing of wastewater effluents towards required parameters (see ANNEX G1/G2) shall be done at least annually by an independent authorised laboratory / testing body. Clear indications of compliance with legal and/or agreed requirements shall be evident. If no legal requirements exist, good practices principles should be observed, such as reduce pollution at the source, prevent pollution, wastewater control and monitoring, etc., and the benchmarks of the STeP standard shall be considered. A continuous internal testing and auditing program for certain parameters are of advantage. If there is a special agreement with a public sewage plant that they accept exceeding legal requirement, this document will be considered. Sampling and testing of sludge used as fertiliser for agricultural use toward the required parameters (see ANNEX G8) shall be done at least annually by an independent laboratory/testing body. Clear indications of compliance with legal requirements shall be evident. If no legal requirements exist, the principles of "Good manufacturing practice" should be observed and the benchmarks of the STeP standard shall be considered. A continuous internal testing and auditing program for certain parameters is of advantage.

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There should be an annual review and a formal process for targeting and reducing wastewater discharge volume and for improving wastewater quality with lower toxicity. A good example would be to focus on ZDHC (Zero Discharge of Hazardous Chemicals). Demonstrated evidence to reduce the amount of wastewater produced in relation to production should be taken into consideration. A cost balance for water extraction/use and treatment of wastewater should be generated annually and documented. This implies that systems shall be in place to measure water usage as a critical part of improving production efficiency. There should be an annual review for improving sludge from wastewater treatment facility quality improvement.

Corrective action to remedy faulty conditions leading to exceeding of limit values shall be initiated immediately and documented following the principles of quality management.

#### Annexes G Limit Values for Wastewater Effluents and Air Emission

Source: Oeko-Institut

### **2.2.1. TO BE DELETED OR DELETED: Wastewater management**

The current Degrees of Intensity duplicate with requirements asked in the criterion on wastewater parameters.

We therefore suggest to delete this criterion or (in the case that for reasons of consistency with other product groups or within the criteria set this criterion needs to be kept) to delete the DoI.

### **2.2.2. Wastewater volume**

The criterion is proposed to be kept as it is.

Through water management, a reduction in water use can be achieved. However, we consider a criterion on wastewater volume as being additionally useful in order to trigger mechanisms for improving production efficiency, by e.g. re-use of process water. However the compilation on the wastewater requirements shows that the wastewater volume is rarely addressed. Only the SteP standard explicitly mentions the target of reducing wastewater discharge volume (see Table 2-2). Other standards such as the EU Ecolabel and GOTS specify wastewater parameters in a different unit of measurement (parameter per kg textile instead of mg per litre wastewater) that can be understood as being a measure for reducing water and thereby waste water as well; it is however not explicitly mentioned as targeting reduction of wastewater volume.

### **2.2.3. MIK – MINIMUM CRITERION: Wastewater parameters (basic)**

The original criterion on wastewater parameters (basic) proposed COD, pH and temperature as the basic parameters differentiating for the DoI the application "Only for one production step" or "For different production steps".

As all wet-processing sites are relevant with regard to criteria for wastewater and because in yarn production, only some special processes are relevant for waste water, e.g. the treatment of wool or the production of viscose fibres, we proposed a change for the guidance as follows:



"Relevant production steps in the textile sector are yarn manufacture and processing of textiles. In the leather sector, this refers to the different steps in the tanning process, especially wet processing. In the case of textiles, the basic parameters are: COD, pH and temperature. In the case of leather, the basic parameters are: COD, NH<sub>4</sub>-N (or TKN), sulphide and chrome (total)."

We proposed to add "colour removal" in the basic parameters for textiles.

As for the DoI, we still proposed to ask for production steps as follows: "Addresses production steps in textile finishing", "Addresses production steps in yarn production (including wool treatment, treatment of flax and other bast fibres and treatment of cellulose) and textile finishing".

In the course of the workshop, it was agreed not to exclude any wet process. Instead the list of basic parameters was discussed as well as the possibility to set a threshold value here. In the basic parameters, it was also suggested to add BOD.

As for the possibility to set threshold values here, it was proposed in the stakeholder workshop to check whether there is a kind of superordinate list exist that can be used for referring to certain threshold values. This was done for the two independent lists mentioned:

- As for the Bündnis für nachhaltige Textilien: According to their Webpage,<sup>3</sup> „The Partnership for Sustainable Textiles has agreed on a wastewater template that enables the wastewater analysis values of textile finishing facilities to be classified and transparently documented in order to make the facilities' waste water management more comparable." Thus, not threshold values are given there.
- The 2016 Wastewater Guidelines ZDHC<sup>4</sup> provides different threshold values for "conventional parameters" differentiating foundational, progressive, and aspirational limits.

Against this background, we do not recommend to refer to the threshold values of the 2016 Wastewater Guidelines ZDHC. So, we rather propose to leave the criterion as it is and to challenge standards via a greater number of parameters.

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**Criteria name:** Wastewater

**Criteria question:** Does the standard include threshold values on basic wastewater parameters?

**Guidance:** All wet-processing sites are relevant with regard to criteria for wastewater and need to be covered by the standard. In the case of textiles, the basic parameters at least for direct discharge are BOD, COD, pH, colour removal, temperature, total phosphor and total nitrogen. As a reference for threshold values that go beyond national legislation, the 2016 Wastewater Guidelines ZDHC and its progressive and aspirational limits can be used for comparison ([https://www.roadmaptozero.com/fileadmin/pdf/Files\\_2016/ZDHC\\_Wastewater\\_Guidelines\\_Print.pdf](https://www.roadmaptozero.com/fileadmin/pdf/Files_2016/ZDHC_Wastewater_Guidelines_Print.pdf)).

In the case of leather, the basic parameters are BOD, COD, NH<sub>4</sub>-N (or TKN), sulphide and chrome (total).

**Degree of Intensity (DoI):**

Standard refers to national legislation

Standard formulates own threshold values that go beyond national legislation

**Weight / DoI Scores:** See excel document

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<sup>3</sup> <https://www.textilbuendnis.com/en/abwassertemplate-2018/>

<sup>4</sup> [https://www.roadmaptozero.com/fileadmin/pdf/Files\\_2016/ZDHC\\_Wastewater\\_Guidelines\\_Print.pdf](https://www.roadmaptozero.com/fileadmin/pdf/Files_2016/ZDHC_Wastewater_Guidelines_Print.pdf)

### 2.2.4. Thresholds for Wastewater Parameters (Advanced)

The criterion is basically kept as it is, besides the parameter BOD that was switched to the basic parameters.

**Criteria name:** Thresholds for Wastewater Parameters (Advanced)

**Criteria question:** Does the standard include threshold values on advanced wastewater parameters?

**Guidance:**

All wet-processing sites are relevant with regard to criteria for wastewater and need to be covered by the standard. In the case of textiles, the advanced parameters at least for direct discharge should not exceed certain threshold values in the wastewater. The advanced parameters are: AOX, N, P, sulphide, ammonium nitrogen and chrome, copper, nickel, zinc, tin.

**Degree of Intensity (DoI):**

Not all of these parameters are covered

All of these parameters are covered

**Weight / DoI Scores:** See excel document

### 2.2.5. NEW: Requirements on Sludge

We propose to add a new criterion on sludge and refer to Table 2-3 for different standards that contain requirements on sludge.

**Criteria name:** Sludge

**Criteria question:** Does the standard include requirements on sludge resulting from wastewater treatment of a production site?

**Guidance:**

Sludge resulting from the wastewater treatment shall be managed in order to avoid that harmful substances are transferred to the environment.

**Degree of Intensity (DoI):**

For some production steps

For all production steps

**Weight / DoI Scores:** See excel document

**Table 2-3: Criteria regarding sludge in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on sludge
Bluesign® criteria for production sites (Version 2.0)	A sludge resulting from the wastewater treatment operations shall be properly handled and managed. The choice of optimal sewage sludge treatment and disposal shall ensure that harmful substances are not transferred to humans or environment. The wastewater resulting from sludge drying operations shall be returned to the WWTP.
EU Ecolabel for textile products (2014/350/EU)	“Criterion 3. Wool and other keratin fibres (including wool from sheep and lambs, and hair from camel, alpaca and goat) Table 3 COD values for the final discharge of effluent from wool scouring 3(c) Wool scourers shall implement at least one of the following measures to

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recover value from either oxidised grease, fibre, suint or sludge arising from the scouring site used for the ecolabelled wool products:

- (i) recovery for sale as a chemical feedstock;
- (ii) the production of compost or liquid fertiliser;
- (iii) the manufacturing of products such as building materials;
- (iv) treatment and energy recovery by anaerobic digestion or incineration.”

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Global Organic Textile  
Standard – GOTS  
(Version 5.0)

#### 2.4.10. Environmental management

All companies must assure compliance with the applicable national and local legal environmental requirements applicable to their processing/manufacturing stages performed (including those referring to emissions to air, wastewater discharge as well as disposal of waste and sludge).

[...]

Wet processing units must keep full records of the use of chemicals, energy, water consumption and waste water treatment, including the disposal of sludge.

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STeP by OEKO-TEX®  
(Edition 02.2018)

#### “4.2.3 Wastewater and sludge

[...]

ty are more stringent than the STeP by OEKO-TEX® criteria. The local and national legal requirements for use of sludge as fertiliser for agricultural use shall be fulfilled. Limit values see ANNEX G8. In all cases, legal requirements shall take precedent if the local or national legal requirements for the facility/application are more stringent than the STeP by OEKO-TEX® criteria. In order to obtain a significant assessment in accordance with the requirements of DETOX TO ZERO by OEKO-TEX®, an annual analysis report of wastewater and where applicable of sludge is required.

[...]

A continuous internal testing and auditing program for certain parameters are of advantage. If there is a special agreement with a public sewage plant that they accept exceeding legal requirement, this document will be considered. Sampling and testing of sludge used as fertiliser for agricultural use toward the required parameters (see ANNEX G8) shall be done at least annually by an independent laboratory/testing body. Clear indications of compliance with legal requirements shall be evident. If no legal requirements exist, the principles of "Good manufacturing practice" should be observed and the benchmarks of the STeP standard shall be considered. A continuous internal testing and auditing program for certain parameters is of advantage.

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Source: Oeko-Institut

### 3. Inputs

#### 3.1. Fibres

Regarding the overall rating of fibre criteria, it is suggested to adjust the Degree of intensity for natural fibres and synthetic fibres. As some standards do not address synthetic fibres, a third category "Not relevant" should be included. The weight of the criterion has to be adjusted by GIZ accordingly. If a criterion is "not relevant", it should not be taken into account for the evaluation.

##### 3.1.1. MIK – MINIMUM CRITERION: Production of natural fibres

Organic in conversion should explicitly be supported, as the conversion time is especially challenging for farmers. Due to the conversion to organic farming, most farmers experience a drop in yield per hectare. At the same time they are not yet supported via the organic premium (Textile Exchange, 2018). An acceptance of organic in conversion for certified textiles would therefore diminish market barriers. First standards, like the GOTS, do already support "organic - in conversion" inputs (see Table 3-1). It is important to distinguish, that "[...] Certifying of products as 'organic - in conversion' is only possible, if the standard on which the certification of the fibre production is based, permits such a certification for the fibre in question." (see below). So we propose to modify the criterion and add "or organic-in-conversion".

**Table 3-1: Criterion regarding "organic – in conversion" fibres**

Standard (version)	Fibre requirement regarding "organic – in conversion"
Global Organic Textile Standard –GOTS (Version 5.0)	Approved are natural fibres that are certified 'organic' or 'organic - in conversion' according to any standard approved in the IFOAM Family of Standards for the relevant scope of production (crop or animal production), such as Regulation (EC) 834/2007, USDA National Organic Program (NOP), APEDA's National Programme for Organic Production (NPOP), China Organic Standard GB/ T19630. The certification body must have a valid and recognised accreditation for the standard it certifies against. Recognised accreditations are ISO 17065 accreditation, NOP accreditation, IFOAM accreditation and IFOAM Global Organic System accreditation. Certifying of products as 'organic - in conversion' is only possible, if the standard on which the certification of the fibre production is based, permits such a certification for the fibre in question. Conversion status of fibres must be stated as specified in chapter 1.4. of this Standard.

Source: Oeko-Institut

It has to be noted here that for labels targeting cotton production, the Siegelklarheit criteria from agriculture are additionally used.

Basically, testing of residues is already covered by another minimum criteria. Tests on residues usually target pesticides providing a sum parameter. Therefore, testing for agrochemical residues cannot be a parameter on its own.

**Criteria name:** Production of natural fibres

**Criteria question:** Does the standard include criteria on the production of natural fibres?

**Guidance:**

Organic fibres" are fibres that are certified as organic according to a recognized international or

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national organic farming standard by a certification body that is IFOAM accredited or internationally recognised (according to ISO 17065). Remark: If standards require other sustainability certification (e.g. BCI, FairTrade, FSC), "equivalence" has to be assessed and recognized. 'Organic - in conversion' is recognized as equivalent to organic.

Random testing on agrochemical residues refers to chemicals at least those listed under the Stockholm and Rotterdam Convention. The prohibition of hazardous pesticides refers at least to the pesticides listed under the Stockholm and Rotterdam Convention. Additionally, the list of prohibited substances might refer to the Class 1A and B substances as defined by WHO.

**Degree of Intensity (DoI):**

1. Fibres are randomly tested for agrochemical residues AND hazardous pesticides as described in the guidance are prohibited.
2. 51% - 90% of fibres is organic or organic in conversion (non-organic natural fibres have to be tested for agrochemical residues)
3. More than 90% of fibres is organic or organic in conversion

**Weight / DoI Scores:** See excel document

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**3.1.2. NEW: Use of recycled cotton fibres**

We propose to insert here a new criterion on recycled cotton fibre.

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**Criteria name:** Use of recycled cotton fibres

**Criteria question:** Does the standard include criteria that favourites the use of recycled fibres?

**Guidance:**

Refers to criteria regarding the use of recycled cotton fibers.

**Degree of Intensity (DoI):**

None

**Weight / DoI Scores:** See excel document

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**3.1.3. MIK – MINIMUM CRITERION: Production of synthetic fibres**

We suggest that this should be a minimum criterion if the standard addresses textiles that contain more than 10% of synthetic fibers (including man-made cellulose fibers). Then, specific criteria depending on different types of synthetic fibers (including man-made cellulose fibers) should be given that guarantee that the environmental effects of the production of synthetic fibers are reduced.

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**Criteria name:** Production of synthetic fibres

**Criteria question:** Does the standard include specific criteria depending on different types of synthetic fibers (including man-made cellulose fibers)?

**Guidance:**

This criterion is relevant if the standard covers textiles containing more than 10% of synthetic fibers (including man-made cellulose fibers). For other standards, the option "not relevant" has to be chosen. Specific criteria should be formulated at least either for the production of synthetic fibers (including man-made cellulose fibers) or the sustainable sourcing of these fibers.

In request of the production of synthetic fibers criteria, that reduce the environmental effects of their production, should be formulated for at least following synthetic fibers (including man-made cellulose fibers): man-made cellulose fibers (viscose, lyocell, modal), polyester fibers, polyacrylic fibers, elastane fibers and polypropylene fibers.

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The sourcing of synthetic fibers (including man-made cellulose fibers) can be addressed by formulate criteria on the use of either recycled fibers or fibers made of recycled pre- or post-consumer waste. The sourcing of man-made cellulose fibers can be addressed by demanding the use of cellulose sourced from wood that has been cultivated in accordance with the principles of sustainable forestry management as defined by the FAO.

If the standard addresses both sustainable sourcing and sustainable production of synthetic fibers (including man-made cellulose fibers) then the highest Degree of Intensity should be chosen.

**Degree of Intensity (DoI):**

Not relevant

Specific criteria addressing the sustainable production of synthetic fibers (including man-made cellulose fibers) are formulated for at least following fibers: the production of man-made cellulose fibers (viscose, lyocell, modal), polyester fibers, polyacrylic fibers, elastane fibers and polypropylene fibers; **OR** the standard addresses the sustainable sourcing (as described in the guidance) of synthetic fibers.

Specific criteria addressing the sustainable production of synthetic fibers (including man-made cellulose fibers) are formulated for at least following fibers: the production of man-made cellulose fibers (viscose, lyocell, modal), polyester fibers, polyacrylic fibers, elastane fibers and polypropylene fibers; **AND** the standard addresses the sustainable sourcing (as described in the guidance) of synthetic fibers.

Specific criteria addressing the sustainable production of synthetic fibers (including man-made cellulose fibers) are formulated for at least following fibers: the production of man-made cellulose fibers (viscose, lyocell, modal), polyester fibers, polyacrylic fibers, elastane fibers and polypropylene fibers; **AND** the standard addresses sustainable sourcing in a comprehensive manner. That means the standard favorites the use of recycled fibers or fibers from recycled plastic waste **AND** guarantee that man-made cellulose fibers are made to 100% of cellulose sourced from wood that has been cultivated in accordance with the principles of sustainable forestry management as defined by the FAO.

**Weight / DoI Scores:** See excel document

**3.1.4. TO BE DELETED: Recycled Material**

We suggest to delete this criterion. Instead specific criteria on natural fibres, synthetic fibres and packaging are formulated!

**3.2. NEW: Packaging**

We suggest integrating here the criteria 800723 and 800725 from the product group cleaning agents.

Some standards address packing, e.g.

- STEP S. 32: 4.3.11.6: Packing and transport wiederverwertbare Verpackungssysteme oder Verpack aus Recyclingmaterial sind vorzuziehen (Dokumentation von Menge und Entsorgung v. Verpack.material).

Packing systems that are reusable or made of recycled material should be preferred.

- GOTS: Storage, packaging and transport

Organic textile products must be stored and transported in such a manner as to prevent contamination by prohibited substances and commingling with conventional products or substitution of the contents. Packaging material must not contain chlorinated plastics (e.g. PVC). Any paper or



cardboard used in packaging material for the retail trade of GOTS Goods (incl. labelling items such as hang tags or swing tags) must be recycled from pre- or post-consumer waste or certified according to a program that verifies compliance with sustainable forestry management principles. Transport means and routes must be documented. In cases where pesticides/biocides are mandated for use due to national rules or law, they may be used in Storerooms / Transport but they must comply with the applicable international or national organic production standard. Wooden pallets used in storage and transport activities are exempt from this requirement.

· Bluesign: Packaging

Using sustainable and environmentally friendly materials for packaging belongs to the bluesign® system principles.

6.1 Packaging materials

The following aspects must be considered in every case:

- Sustainability aspects (including weight/utility ratio) should be considered when selecting materials.
- PVC is not permitted.
- Preference is given to recycled materials.
- Paper and card boards should come from FSC certified sources or should be made of recycled materials.

· B.E.: Verpackung

Die verwendeten Kunststoffe dürfen keine halogenhaltigen Polymere enthalten. Besteht die Verpackung aus Papier oder Pappe soll der Recyclinganteil mindestens 80 % betragen. Verpackungsmaterialien gelten als recycelt, wenn Produktabfälle (Post-Consumer-Abfälle) ein werkstoffliches Verwertungsverfahren durchlaufen haben.

Nachweis

Der Antragsteller erklärt die Einhaltung der Anforderung in Anlage 1 und legt ggf. ein Muster der Produktverpackung (Foto) der RAL gGmbH vor. Der Antragsteller legt einen Nachweis des Anteils von wiederverwertetem Material in der Verpackung vor.

## 4. Energy

### 4.1. Energy consumption

Some process steps in textile production need quite a lot of energy. Nevertheless for standards that don't certify single production sites (like environmental labels that cover a wide range of different products) it isn't possible to address this aspect in an effective manner. Data on energy demand of best available technologies are missing. So it isn't possible to develop criteria on energy use of specific production processes. Therefore we don't suggest to define a minimum criteria on energy consumption.

Most standards, which do contain criteria concerning energy consumption, request an increase of energy efficiency (see Table 4-1). It is therefore suggested to change the DoI Scores from originally 50 - 90 - 100 to 25 - 90 - 100. In this way standards, which do not certify single production sites, get the same scores as before. Standards, which address the issue, are encouraged to not only request a monitoring but increase the efficiency and reduce energy consumption.

**Table 4-1: Criteria regarding energy consumption in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on energy consumption
bluesign®system (Version 1.0)	<p>“The bluesign® system helps optimizing the process efficiency by minimizing both energy and material input. As the first step an evaluation of the available data concerning water, energy, chemicals and raw materials consumption is performed. It is followed by an in-depth analysis and benchmarking of the obtained results against publicly available data and numbers shared by other system partners. Finally, the bluesign® expertise provides the recommendations on the potential improvement of resource efficiency that are supported by the respective BATs.”</p>
Bluesign®criteria for production sites (Version 2.0)	<p>“A manufacturer shall strive for an optimization of quality and quantity of resources. [...] Energy carriers shall be chosen and used in a responsible way. The aim of minimizing the carbon footprint shall be in focus. The energy needed to operate the installations shall be generated in a sustainable and resource saving way with a preference for renewable energy sources. Energy saving shall be part of the corporate policy.”</p>
EU Ecolabel for tex- tile products (2014/350/EU)	<p>“The applicant shall demonstrate that the energy used in washing, drying and curing steps associated with dyeing, printing and finishing steps for ecolabelled products is measured and benchmarked as part of an energy or carbon dioxide emissions management system. Furthermore, they shall demonstrate that production sites have implemented a minimum number of Best Available Techniques (BAT) energy efficiency techniques as specified in Table 7 and as listed in Appendix 3 to this decision.”</p>
Fairtrade- Textilstandard (Aktuelle Fassung 22.03.2016_v1.0)	<p>„Ihr Unternehmen muss den Energieverbrauch messen und einen Plan zur Reduktion und Wiedergewinnung von Energie entwickeln. Der Fortschritt muss anhand von Indikatoren dokumentiert werden, die von entsprechenden bereichsübergreifenden Teams festgelegt werden. Ihr Unternehmen muss über ein System verfügen, das Erfolge in diesem Bereich misst.“</p>
Global Organic Tex- tile Standard –GOTS (Version 5.0)	<p>“They must have a written environmental policy and procedures in place to allow monitoring and improving relevant environmental performances in their facilities. Depending on the processing/manufacturing stages performed, the available data and procedures need to include: [...] • data on energy and water resources and their consumption per kg of textile output • target goals and procedures to reduce energy and water consumption per kg of textile output [...] • documentation of staff training in the conservation of water and energy, the proper and minimal use of chemicals and their correct disposal • programme for improvement”</p>
Naturland Richtlinie Verarbeitung – Er- gänzung für Textilien (Stand 05/2017)	<p>Dokumentation der Ausbildung des Personals bezüglich sparsamen Umgangs mit Wasser und Energie, richtige und sparsame Verwendung von Chemikalien und ihrer korrekten Entsorgung. Nassverarbeitungsbetriebe müssen die Verwendung von Chemikalien, Energie- und Wasserverbrauch, als auch die Abwasseraufbereitung einschließlich der Entsorgung</p>



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von Klärschlamm dokumentieren.

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STeP by OEKO- The environmental performance of the facility shall be considered at all time and shall  
TEX® focus on the following interests and objectives:  
(Edition 02.2018) [...]  
- minimisation of energy resources using monitoring, control and recovery, as well as  
banning of non-renewable resources

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Source: Oeko-Institut

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## 5. Waste & Air pollution

### 5.1. Waste production

#### 5.1.1. TO BE DELETED: Restricting waste volume

The aim formulated by this criterion is very important. A basis for restricting the waste volume is a waste management that monitors the waste streams and forms the bases for different measures like reduction, segregation and recycling. We therefore propose to combine this criterion with the basic criterion waste management.

#### 5.1.2. PROPOSAL FOR RELOCATION: Waste reuse or recycling

We propose to move this criterion so it follows the criterion E54 waste segregation because this is a prerequisite for reuse or recycling.

#### 5.1.3. TO BE DELETED: Waste toxicity

The criteria name and question might be misleading as the question “Does the standard include criteria on toxicity of waste?” might imply that toxicity of waste or its disposal should be defined. Waste which is harmful for the environment and/or human health is defined as hazardous waste. Classifying waste according to its hazardousness is an essential element of waste management; as such classifications determine the waste treatment methods and the supporting waste documentation. In the EU, Commission Decision 2000/532/EC provides a European Waste List for wastes that are classified as hazardous. Wastes from the leather, fur and textile industries carry the two-digit 04.

What the criterion aims to promote according to the Guidance explaining “Refers to any requirement on hazardous, toxic waste (excl. wastewater). Safe disposal of toxic waste is covered in a different criterion ('hazardous waste disposal').” is redundant to the criterion on waste management and hazardous waste disposal.

We therefore we propose to delete this criterion.

### 5.2. Waste management

In general waste management depends on the specific country situation and is also strongly regulated by the specific national law. Therefore we don't suggest to define a minimum criteria in this set of criteria. We propose to keep the following criteria with slight adaptations explained for each criterion. The following table shows excerpts from the different standards regarding waste and will be used to discuss the following sections on waste management.

**Table 5-1: Criteria regarding waste in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on waste
Blauer Engel Textiles DE-UZ 154 (Edition July 2017)	No requirement on waste
Bluesign®criteria for production sites (Version 2.0)	<p>10.4 Waste</p> <p>Each system partner shall follow the waste management principle (Fig. 10.2) and shall prevent waste wherever possible. Standard operating procedures for waste management shall be established at each production site.</p> <p>Following requirements shall apply:</p> <ul style="list-style-type: none"> <li>· Compliance with national and/or local regulations pertaining to waste storage and transport shall be ensured.</li> <li>· Packaging material shall be reduced, the use of returnable containers is strongly recommended.</li> <li>· Unavoidable waste shall be collected separately to enable re-use/recycling or to ensure a safe disposal.</li> <li>· Workers shall be informed of the binding waste management procedures.</li> <li>· A waste balance shall be created on a yearly basis including an overview of waste types, quantity, disposal methods etc. The documents and reports including third party protocols from waste management companies shall be archived.</li> <li>· Hazardous waste shall be stored separately from non-hazardous waste; storage areas for hazardous waste shall be defined.</li> <li>· Hazardous waste shall be disposed of separately from non-hazardous waste. Only licensed subcontractors shall be contracted for transport and discharge of hazardous waste.</li> <li>· Disposal of waste shall ensure that contamination of soil and water is avoided; if waste is incinerated an appropriate incineration technique and an off-gas abatement technique shall be installed.</li> <li>· Sludge from a wastewater treatment shall not be used in agriculture.</li> </ul> <p>By way of exception an on-site waste incineration at production sites can be tolerated. In this case the permit for incineration must explicitly and precisely list the conditions for incineration. Extensive and regular off-gas measurements including the parameter dioxin will be mandatory in this case. A system partner must have an excellent know-how regarding the process management and process control.</p>
EU Ecolabel for textile products (2014/350/EU)	<p>1.TEXTILE FIBRE CRITERIA</p> <p>[...] fibres that contain a recycled content are defined as fibres originating from pre-consumer waste (including polymer and fibre production waste, cuttings from textile and clothing manufacturers) and post-consumer waste (textile and all kind of fibre and textile products, as well as non-textile waste including PET drinking bottles and fishing nets).</p>
Fairtrade-Textilstandard (Aktuelle Fassung 22.03.2016_v1.0)	<p>4.5 Müll</p> <p>4.5.1 Müllsammlung und -trennung</p> <p>Kern Ihr Unternehmen muss Müll gemäß den lokalen Vorschriften sammeln und trennen.</p>

Jahr 0 Müll muss über kommunale Müllentsorgungssysteme angemessen entsorgt werden.

#### 4.5.2 Säuberung, Lagerung und Entsorgung von Sondermüll

Kern Ihr Unternehmen darf keine leeren Behältnisse gefährlicher Chemikalien zur Aufbewahrung von Lebensmitteln oder Wasser verwenden. Leere Behälter müssen dreifach ausgespült werden, und das Spülwasser muss für die Mischung des nächsten Pestizideinsatzes wiederverwendet werden. Nach dem dreifachen Ausspülen müssen leere Behälter perforiert und bis zu ihrer Entsorgung aufbewahrt werden. Alle ausrangierten Gegenstände, die mit Pestiziden in Berührung gekommen sind, müssen angemessen gesäubert und aufbewahrt werden.

Jahr 0 Hinweis: „Angemessen aufbewahren“ bedeutet, Gefahren zu minimieren, indem Sie kontaminierte Gegenstände von Menschen, Tieren und Wasserquellen fernhalten. „Ausrangierte Gegenstände“ bezeichnet weitere Materialien, die in Kontakt mit gefährlichen Chemikalien gekommen sind, beispielsweise persönliche Schutzausrüstungen (PSA), Filter, Messausrüstungen und Geräte. Ihr Unternehmen sollte für die Entsorgung dieser Materialien Ihre Lieferanten und/oder Ihre Behörden vor Ort kontaktieren.

#### 4.5.3 Plan zur Abfallwirtschaft

Kern/Jahr 1 Ihr Unternehmen muss über einen Plan zur Abfallwirtschaft verfügen, der Strategien zur Müllvermeidung, Wiederverwertung, Wiederverwendung sowie Entsorgungsalternativen umfasst. Dieser Plan muss Zeiträume definieren, innerhalb derer Ihr Unternehmen die Hauptabfälle, Methoden zu ihrer Reduktion und Wiederverwendung, soweit möglich, identifiziert hat, und wie diese sich am besten unter den örtlichen Bedingungen entsorgen lassen.

Hinweis: Ihr Unternehmen ist dazu aufgefordert, sich an einer regionalen Initiative für Abfallwirtschaft zu beteiligen und seine Strategien zu aktualisieren, sobald sich Alternativen in Ihrer Region bieten. Alle potenziellen Quellen für Abfall müssen identifiziert werden. Die Prioritäten Ihres Plans müssen hinsichtlich Aspekten wie Giftigkeit von Abfällen, geschätzter Menge und anderen relevanten Kriterien gesetzt werden. Im Plan müssen Alternativen für das Sammeln und die Entsorgung gefährlichen und ungefährlichen Abfalls sowie für alle Stoffe, die wiederverwertet werden können, benannt werden. Die Alternativen sind von deren Verfügbarkeit in Ihrer Region abhängig.

#### 4.5.4 Sondermüll

Kern/Jahr 0 Erzeugt Ihr Unternehmen als Sondermüll eingestuftem Müll, so richtet sich Ihr Unternehmen an den für Sie zutreffenden nationalen und regionalen Gesetzesvorgaben, um die Verschmutzung von Grundwasser und Luft zu verhindern. Ihr Unternehmen muss das Betriebsgelände frei von gefährlichem Sondermüll halten. Ihr Unternehmen muss über spezielle Bereiche zur Lagerung und Entsorgung von Sondermüll verfügen und diese regelmäßig verwenden. Das Risiko von Umweltbelastungen durch Lager oder Entsorgungsbereiche für gefährlichen Sondermüll muss ausgeschlossen oder zumindest gering gehalten werden.

#### 4.5.5 Plan zur Müllvermeidung

Entw / Jahr 3 Ihr Unternehmen muss Maßnahmen zur Müllvermeidung entwickeln und die Verringerung der Müllherzeugung dokumentieren.

stages performed (including those referring to emissions to air, wastewater discharge as well as disposal of waste and sludge).

They must have a written environmental policy and procedures in place to allow monitoring and improving relevant environmental performances in their facilities. Depending on the processing/manufacturing stages performed, the available data and procedures need to include:

[..]

- monitoring of waste and discharges
- procedures to minimise waste and discharges
- procedures to follow in case of waste and pollution incidents

[...] No on-site waste burning or uncontrolled waste land-filling should be undertaken.

Naturland Richtlinie Verarbeitung – Ergänzung für Textilien (Stand 05/2017)

#### 7. Umweltmanagement

Die Verarbeitungsbetriebe verfügen über schriftlich festgelegte Verfahren und Maßnahmen bezüglich Umweltschutz:

- Minimierung und Überwachung von Abfall- und Umweltbelastungen
- Zu treffende Maßnahmen im Falle von Abfall- und Verschmutzungsvorfällen.

STeP by OEKO-TEX®  
(Edition 02.2018)

#### 4.2. Environmental performance

##### 4.2.1 Purpose

[...]

- management of all types of waste, including reuse and recycling of waste wherever possible and the separation of all hazardous waste prior to disposal by a licensed facility

[...]

- to have valid license(s) or permit(s) for air emissions, hazardous substances, air conditioning, waste disposal/handling and utilities such as boilers, steam vessels, generators and transformers

##### 4.2.4 Air Emissions

Incineration of waste is only allowed in plants which have suitable emission controls for the reduction of unburned hydrocarbons, dioxins, halogen compounds and heavy metals.

##### 4.2.7 Production Waste / Waste Management

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The type, category and quantity of all production waste shall be recorded and documented. The disposal practices shall be documented. A balance of disposal costs and utilisation costs, including possible alternative ways of disposal, should be prepared.

Disposal of production waste in an on-site landfill, incineration at facility sites and transfer of solid and liquid waste into natural bodies of water (not applicable to cleaned wastewater) shall be avoided at all times. Recycling of waste, waste taken back by suppliers and transfer of waste to other facilities for reuse (purpose should be known) is preferred.

Residues from e.g. sizing baths, pre-treatment, dyeing and finishing baths as well as printing and coating pastes should be collected and either reused or disposed of in a legal, safe and ethical manner.

Textile waste containing hazardous substances shall be collected separately, documented and disposed of in a legal and ethical manner. Production waste, both hazardous and non-hazardous, shall be collected in designated areas and sorted by type (e.g. paper, cardboard, textile waste, plastic(s), general waste, iron, etc.). Waste storage areas shall be built in such a way that contamination of the surroundings and water is minimized with the aim of zero environmental impact. The storage areas shall be protected from weather influence and shall be fire proof. Disposal of hazardous substances shall be recorded and designated as special waste. Recycling procedures for returning lubricating agents and machine oils to the supplier should be followed.

A recycling programme to reduce or eliminate all waste shall be implemented and documented.

The improvement of waste reduction, reuse and recycling of waste shall be reviewed at least once per year and evidence for reduction of the quantity of waste should be an objective. An evaluation of waste management contractors in terms of sustainability, disposal/treatment methods should be preferred and the contractors should be audited regularly if possible. The results of these efforts should be communicated.

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Source: Oeko-Institut

### **5.2.1. Waste management (production phase)**

This criterion had so far no DoI. For the revision, it is proposed to introduce Degrees of Intensity thereby integrating the criterion on "Restricting waste volume" (E50). Besides this criterion providing Dols is then comparable to other criteria e.g. energy consumption or water us.

The Guidance saying “Refers to recording waste streams and to waste management procedures including collection and suitable disposal of waste streams (excl. wastewater). At least one of the production phases has to be covered by the standard. The standard has to include specific criteria on this aspect. General criteria on environmental management systems are not sufficient. The standard might refer to existing reporting tools like GRI (Global Reporting Initiative; e.g. indicator EN23: Total weight of waste by type and disposal method).” is slightly adapted, e.g. the sentence “At least one of the production phases has to be covered by the standard.” is proposed to be deleted. The DoI do not reflect the disposal of hazardous waste as this is assessed in a separate criterion E55.

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**Criteria name:** Waste management

**Criteria question:** Does the standard include criteria on waste management?

**Guidance:** Refers to recording waste streams and to waste management procedures including collection and suitable disposal of waste streams (excl. wastewater) and requirements for reducing waste.

The standard has to include specific criteria on this aspect. General criteria on environmental management systems are not sufficient. The standard might refer to existing reporting tools like GRI (Global Reporting Initiative; e.g. indicator EN23: Total weight of waste by type and disposal method).

**Degree of Intensity (DoI):**

Waste management including suitable disposal and monitoring of waste streams over time

Waste management including suitable disposal and reduction measures for waste volumes

**Weight / DoI Scores:** See excel document

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### 5.2.2. Waste segregation

Criterion is proposed to be kept as it is.

### 5.2.3. RELOCATION: Waste reuse or recycling

The criterion **E51** should be located here.

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**Criteria name:** Waste reuse or recycling

**Criteria question:** Does the standard include criteria on re-using or recycling waste on-site?

**Guidance:** Refers to requirements to re-use or recycle waste on-site (excl. wastewater), e.g. use of organic material as fertilizer or renewable energy.

**Degree of Intensity (DoI):** None

**Weight / DoI Scores:** See excel document

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### 5.2.4. Hazardous waste disposal

Criterion is proposed to be kept as it is.

The prevention of uncontrolled disposal of hazardous waste is an important criterion.

### 5.2.5. Waste burning

It is proposed to keep the criterion as it is.



### 5.2.6. Waste landfilling

It is proposed to keep the criterion as it is.

### 5.2.7. Waste handling by third parties

It is proposed to keep the criterion as it is.

## 5.3. Air pollution (excl. GHG) & Immission

Air emissions are one of the major problems of some processes in textile production, especially in the production of synthetic fibres but also in finishing processes. Air emissions in textile finishing can be caused by textile raw material itself, if it is thermally stressed, auxiliaries and chemicals used in finishing and coating processes or in dyeing processes, which are temporarily fixed on the textile and released during thermal processes (drying, heat-setting) but also from power generation.

### 5.3.1. MIK – MINIMUM CRITERION: Air pollution

Oeko-Institut suggested introducing a minimum criterion for air pollution. The first draft for the minimum criterion proposed an assessment along standards that addresses textiles made from synthetic fibres and proposed two degrees of intensity such as “Not relevant” and “Specific criteria depending on different types of synthetic fibres (including man-made cellulose fibres). During the stakeholder workshop, the participants suggested not to focus in synthetic fibres but for the criterion on air pollution, return to the original guidance and degrees of intensity but assuring to keep a minimum criterion in the field of air pollution.

Against this background we propose to keep the original criterion on air pollution. However, one minor change is proposed for the DoI “Increase emission efficiency (reduce emissions at source)”; the new wording proposal is “Increase efficiency (reduce emissions at source)”.

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**Criteria name:** Air pollution

**Criteria question:** Does the standard include criteria on air pollution?

**Guidance:** Refers to requirements on emissions of air pollutants (excl. greenhouse gases).

**Degree of Intensity (DoI):**

Monitor emissions over time

Reduce emissions (through end-of-pipe technology)

Increase efficiency (reduce emissions at source)

**Weight / DoI Scores:** See excel document

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### 5.3.2. RENAME: Restrictions on Air pollution along the textiles/leather production process

We propose to keep this criterion but to rename it for reasons of consistency with other criteria and propose changes for the criteria question and the guidance for reasons of completeness.

In Table 5-2, excerpts from different textile standards regarding requirements on air pollution are compiled in order to provide an overview on air emission parameters in textile production.



**Criteria name:** Air pollution parameters

**Criteria question:** Does the standard include limit values on air emission parameters?

**Guidance:**

Air pollution should be avoided along the production process.

In the case of leather, the production process covers the pre-tanning stage, tanning until finishing.

In the case of textile, this refers to air pollution like sulfur compounds, dust, NO<sub>x</sub> or for production of synthetic fibers specific emission values for e.g. dimethylacetamide. The production process covers the production of synthetic fibres until textile finishing.

**Degree of Intensity (DoI):**

For some production steps

For all production steps

**Weight / DoI Scores:** See excel document

The following Table 5-2 compiles citations from textile standards on air pollution to provide an overview on the different approaches and parameters.

**Table 5-2: Criteria regarding air pollution in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on air pollution
Bluesign®criteria for production sites (Version 2.0)	<p>10.2 Air</p> <p>10.2.1 General</p> <p>Reduction of air emissions and maintenance of an odor-free atmosphere with the goal of achieving the best possible air quality should be assured.</p> <p>Air emissions apply to</p> <ul style="list-style-type: none"> <li>· stack emissions, and</li> <li>· fugitive emissions (emissions which are not captured but occur by evaporation during application, leaks, etc.)</li> </ul> <p>A system partner shall establish and maintain an inventory list of all emission ports (captured air emissions).</p> <p>10.2.2 VOC-relevant production sites</p> <p>A system partner shall in general seek for low-emission processes and, if feasible, shall substitute solvent borne products/processes by water based technologies.</p> <p>A volatile organic compound (VOC)-relevant production site, i.e. where more than 5 tons of solvents per year are being used, must meet the following air emission limits (for total organic carbon (TOC) in off-gas or efficiency):</p> <ul style="list-style-type: none"> <li>· less than 50 mg of TOC per m<sup>3</sup> for each emission port or</li> <li>· less than 0.5 kg of TOC per hour or</li> <li>· more than 80 % efficiency regarding TOC elimination.</li> </ul> <p>If toluene or N,N-dimethylformamide is used at the site the efficiency of off-gas cleaning for these types of substances has to be on a level of 80 % or higher.</p> <p>For other hazardous organic or inorganic substances there is currently no bluesign® limit; local limits have to be followed.</p> <p>A VOC-relevant production site/company must be able to establish a well-documented input/output balance of solvents.</p> <p>[...]</p>

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A tailor made off-gas abatement system considering BAT shall be installed and regularly maintained

- Air emissions and efficiency of off-gas abatement system (TOC and relevant substances as toluene, N,Ndimethylformamide) shall be measured in regular time intervals.
- Fugitive emissions shall be minimized
- If relevant (especially if aqueous scrubber is installed), measured values for wastewater emissions are of interest

#### 10.2.3 Emissions from power generation / boiler house

Emissions from power generation/boiler houses are characterized by

- NO<sub>x</sub>
- SO<sub>2</sub>
- CO
- Dust

Currently, the bluesign® criteria set no limits for these parameters but the local requirements have to be fulfilled in every case. The goal shall be to use low emission fuels, as for example natural or liquid pressured gas. In cases where heavy oil or coal is used an appropriate off-gas abatement system minimizing SO<sub>2</sub> and particle emissions shall be installed.

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EU Ecolabel for textile products  
(2014/350/EU)

#### Criterion 4. Acrylic

4(a) The emissions to air of acrylonitrile (during polymerisation and up to the solution ready for spinning), expressed as an annual average, shall be less than 1,0 g/kg of fibre produced.

4(b) The workplace emissions to air of N,N-dimethylacetamide (127-19-5) during polymerisation and spinning shall not exceed an Indicative Occupational Exposure Limit Value (IOELV) of 10,0 ppm.

#### Criterion 5. Elastane [...]

5(b) The workplace emissions to air of the following substances during polymerisation and spinning shall not exceed the following indicative occupational exposure limit values (IOELV): (i) diphenylmethane-4,4'-diisocyanate (101-68-8) 0,005 ppm (ii) toluene-2,4-diisocyanate (584-84-9) 0,005 ppm (iii) N,N-dimethylacetamide (127-19-5) 10,0 ppm

#### Criterion 6. Polyamide (or nylon) [...]

6(b) Production standard 2: N<sub>2</sub>O emissions from monomer production. The emissions to air of N<sub>2</sub>O from nylon monomer production, expressed as an annual average, shall not exceed 9,0 g N<sub>2</sub>O/kg of caprolactam (for nylon 6) or adipic acid (for nylon 6,6). [...]

#### Criterion 9. Man-made cellulose fibres (including viscose, modal and lyocell)

Fibre production sub-criteria 9(e) For viscose and modal fibres, the sulphur content of the emissions of sulphur compounds to air from fibre production processes, expressed as an annual average, shall not exceed the following performance values in Table 4. [...]

#### Criterion 16. Treatment of emissions to air and water [...]

16(b) Emissions to air from printing and finishing processes Total emissions of organic compounds, as defined in Council Directive 1999/13/EC (1), from textile printing and finishing production sites used to manufacture the ecolabelled product(s) shall not exceed 100,0 mg C/Nm<sup>3</sup>.

Where textile coating and drying processes allow for the recovery and reuse of solvents an emissions limit of 150,0 mg C/Nm<sup>3</sup> shall apply. Finishing processes include

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	the thermosetting, thermosoling, coating and impregnating of textiles including their respective drying (stenter) facilities.
Fairtrade- Textilstandard (Aktuelle Fassung 22.03.2016_v1.0)	<p>4.3 Emissionen in die Luft</p> <p>4.3.1 Emissionsminderungstechniken</p> <p>Kern/Jahr 1 Ihr Unternehmen muss geeignete Emissionsminderungstechniken anwenden für alle Fertigungsbereiche Ihres Unternehmens, die Luftschadstoffe produzieren. Minderungstechniken können u. a. sein: Belüftungssysteme, Absorption, physikalisches oder chemisches Waschen, geschlossene Regelkreise zur Rückgewinnung von Lösungsmitteln, Ausrüstung zur Verringerung von Lärm/Geruch und Vibrationen. Zu den wichtigen Ursachen von Luftschadstoffen gehören:</p> <ul style="list-style-type: none"> <li>· Beschichtungs- und Färbeverfahren;</li> <li>· Druck;</li> <li>· Trocknung (Stoffe, Garne und Drucke);</li> <li>· Staub erzeugende Textilverarbeitung (Ballenbrecher, automatische Zuführungen, Trenner und Öffner, mechanische Förderbänder, Pflücker, Kardierer) sowie Spinnen;</li> <li>· Verbrennungsquellen zur Stromgewinnung und Beheizung;</li> <li>· Weben.</li> </ul> <p>4.3.2 Messung der Emissionsreduktion</p> <p>Entw/ Jahr 3 Ihr Unternehmen muss die Reduktion gefährlicher und nicht gefährlicher Emissionen messen, die durch die in Anforderung 4.3.1 genannten Techniken erreicht werden konnte.</p>
Global Organic Textile Standard – GOTS (Version 5.0)	<p>2.4.10. Environmental management</p> <p>All companies must assure compliance with the applicable national and local legal environmental requirements applicable to their processing/manufacturing stages performed (including those referring to emissions to air, wastewater discharge as well as disposal of waste and sludge).</p>
Naturland Richtlinie Verarbeitung – Ergänzung für Textilien (Stand 05/2017)	No requirement
STeP by OEKO- TEX® (Edition 02.2018)	<p>4.2 Environmental performance</p> <p>4.2.1 Purpose</p> <ul style="list-style-type: none"> <li>• <b>control and minimisation of air emissions, taking into consideration local and national emission limits</b></li> <li>• <b>to have valid license(s) or permit(s) for air emissions, hazardous substances, air conditioning, waste disposal/handling and utilities such as boilers, steam vessels, generators and transformers</b></li> </ul> <p>4.2.4 Air Emissions</p>

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Heating plants and production machines which cause air emissions shall be identified and located. Legal requirements for operation and air emissions shall be fulfilled and documented. Compliance with this standard and/or the legal requirements shall be demonstrated through external testing by an independent authorised laboratory/testing body and, if possible, by internal tests. The sequence of external testing for heating plants with a thermal value of > 2 MW shall be at least once a year, and with a thermal value of 0.3 - 2MW at least every 3 years. For heating plants <0.3MW measurement is voluntary but recommended. Pollution reduction devices on smokestacks, vents and extraction systems should be used whenever necessary. All measures which are taken to reduce air emissions, such as pollution reduction devices and pollution prevention/waste minimisation/chemical substitution, should be part of a management defined objective.

Continuous emission measurements of the parameters CO, SO<sub>2</sub> and NO<sub>x</sub> at power or steam generating plants are necessary if the thermal value exceeds 50 MW.

Production machines and devices which cause direct or indirect air emissions shall be monitored and the emissions preferably filtered or washed so they are in compliance with national legal requirements. Internal and external odours caused, for example, during certain dyeing and finishing processes using oils, solvent vapours, formaldehyde, sulphur compounds and ammonia shall be located and reduced if possible. Reduction can be achieved through the substitution of odour intensive substances, installation and modification of equipment (e.g. an activated charcoal filter), the capture and recovery of the emitted gases from the processes (e.g. heat recovery systems) and routing of stack emissions through boilers.

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The exhaust air of firing plants and steam plants will be evaluated according to the following parameters:

**CO (carbon monoxide)**

Levels for emissions of CO regarding plants with a thermal value exceeding 2 MW for conventional solid, liquid and gaseous fuels see ANNEX G 3.

**Dust**

Levels for dust emissions regarding all firings above 10 MW see ANNEX G 4.

**S02 (sulphur dioxide)**

Levels for emissions of S02 regarding plants with a thermal value between 2 MW and 50 MW for conventional solid, liquid and gaseous fuels as well as for plants with a thermal value > 50 MW see ANNEX G 5.

**NOx**

Levels for emissions of NOx (nitrogen monoxide + nitrogen dioxide) regarding plants with a thermal value >2 MW for conventional solid, liquid and gaseous fuels calculated as nitrogen dioxide (NO2) see ANNEX G 6.

Source: Oeko-Institut

**6. Environmental Management**

**6.1. Environmental Management**

**6.1.1. Environmental laws and regulations**

Although compliance with local, regional and national laws and regulations should be given in theory, in practice this might not be the case. For palm oil we learned, the ISPO (Indonesian Sustainable Palm Oil) is an own standard by the Indonesian government, which is basically requesting compliance with federal law. After a few years of its introduction, there are still a lot of plantations, which are not certified. Therefore it might make sense, to request the compliance with national law. In the evaluated standards it is often stressed that in case local, regional or national laws and regulations exceed standard requirements, the laws and regulations must be fulfilled. This request seems sensible.

**Table 6-1: Criteria regarding environmental laws and regulations in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on environmental laws and regulations
Fairtrade- Textilstandard (Aktuelle Fassung 22.03.2016_v1.0)	„Fairtrade International verlangt, dass Unternehmen stets nationale Gesetze einhalten, sofern diese höhere Anforderungen setzen als dieser Standard. Gleiches gilt für regionale und branchenspezifische Praktiken. Fairtrade International betrachtet die Vereinigungsfreiheit und das Recht auf Tarifverhandlungen als das Fundament zur Einhaltung von Arbeiterrechten und hält unabhängige und demokratische Gewerk-

schaften für den besten Weg, um diese zu verwirklichen.“

Global Organic Textile Standard –GOTS (Version 5.0) “Working hours must comply with national laws and benchmark industry standards, whichever affords greater protection.”

STeP by OEKO-TEX® (Edition 02.2018) “A collection of all documents which form the basis for the legal existence and the lawful operation of the organisation shall be available and organised for review at all times. A listing of the relevant national, local and international laws and regulations impacting the organisation shall be available and organised, ready for review and audit.”

Source: Oeko-Institut

### 6.1.2. Permits

### 6.1.3. Environmental impact assessment

This aspect is not addressed by the reviewed standards. But we would suggest to keep this criteria.

### 6.1.4. Negative environmental impacts

This aspect is not addressed by the reviewed standards. But we would suggest to keep this criterion.

### 6.1.5. Stakeholder engagement (environment)

Maintaining a stakeholder list should not be awarded with any scores, as it could have not practical impact if it is not used. We would suggest to delete this DoI or to lower the DoI to 25 (see proposal in the excel-document).

### 6.1.6. NEW: Staff training

Some standards explicitly request trainings for employees concerning environmental topics (see Table 6-2). This includes staff training in the conservation of water and energy, the proper and minimal use of chemicals and their correct disposal. As the behaviour of the employees has a great impact on the environmental performance of a company, it is therefore suggested to include this aspect in the DoI scores, and to differentiate between internal and external stakeholders. Maintaining a stakeholder list should not be awarded with any scores, as it could have not practical impact if it is not used.

**Table 6-2: Criteria regarding staff training in different textile standards**

Standard (version)	Excerpts / citations from the standard documents on stakeholder engagement
Fairtrade-Textilstandard (Aktuelle Fassung 22.03.2016_v1.0)	„Ihr Unternehmen muss ein System entwickeln und anwenden, mit dem es Ihre Beschäftigten für die Anforderungen aus Abschnitt 4, Ökologische Verantwortung, angemessen sensibilisiert.“
Naturland Richtlinie	„Dokumentation der Ausbildung des Personals bezüglich sparsamen Umgangs mit

Verarbeitung – Er- Wasser und Energie, richtige und sparsame Verwendung von Chemikalien und ihrer gänzung für Textilien korrekten Entsorgung.“

(Stand 05/2017)

STeP by OEKO- “The introduction of an EMS, the environmental policy, the environmental objectives  
TEX® as well as the resulting organizational structures should be made known to all internal  
(Edition 02.2018) stakeholders

[...]

The organization should decide about procedures to communicate with external stakeholders and interested parties on matters related to its environmental management policy, performance and effects. The best practice should male such a report publicly available to all interested parties.”

Source: Oeko-Institut

## 7. Quality

### 7.1. Quality and Suitability

Even if the quality of a textile has a great influence of its environmental impact, we wouldn't suggest to define a minimum criteria for "quality". It is quite difficult to define general criteria on the quality of textiles. In general such criteria are not very effective. Since labelled textiles aren't cheap, the manufacturer will define very specific quality criteria to guarantee that the textiles he offers are of high quality.

#### 7.1.1. Quality of textiles

For cotton standards, there is a lot of criticism from good practice companies, that quality is not sufficiently covered<sup>5</sup>. Therefore it is suggested to differentiate the DoI scores differently, and assign less points if not all of the quality aspects are tested. Furthermore it is suggested to add "durability of function" as a fifth aspect. It is already listed as criterion in the Blue Angel and EU Ecolabel (see Table 7-1), and goes beyond the current requirement.

**Table 7-1: Criteria regarding quality in different textile standards**

**Standard (version) Excerpts / citations from the standard documents on quality of textiles**

Blauer Engel Textiles DE-UZ 154 (Edition July 2017)	Criteria regarding: <ul style="list-style-type: none"> <li>· Change in dimensions during washing and drying</li> <li>· Colour fastness to washing</li> <li>· Colour fastness to perspiration (acid, alkaline)</li> <li>· Colour fastness to rubbing</li> <li>· Colour fastness to light</li> <li>· Colour fastness to saliva and perspiration</li> <li>· Fabric resistance to pilling and abrasion</li> <li>· Durability of function</li> </ul>
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EU Ecolabel for tex- Fitness for use

<sup>5</sup> More information on this topic will be published 2019 within the BMBF project „Bio-Macht: Power Aspects in Global Value Chains“



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tile products (2014/350/EU)	<ul style="list-style-type: none"><li>· Dimensional changes during washing and drying</li><li>· Colour fastness to washing</li><li>· Colour fastness to perspiration (acid, alkaline)</li><li>· Colour fastness to wet rubbing</li><li>· Colour fastness to dry rubbing</li><li>· Colour fastness to light</li><li>· Wash resistance of cleaning products</li><li>· Fabric resistance to pilling and abrasion</li><li>· Durability of function</li></ul>
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Source: Oeko-Institut

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To clarify this criterion, it is suggested to reword the existing quality requirements in the guidance as follows:

- fastness to rubbing
- fastness to perspiration
- fastness to light
- fastness to washing
- durability of function

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**Criteria name:** Quality of textiles

**Criteria question:** Does the standard cover criteria on the quality of textiles?

**Guidance:**

Refers to the quality which can be measured by five main aspects: fastness to rubbing, fastness to perspiration, fastness to light, fastness to washing, durability of function

**Degree of Intensity (Dol):**

Less than five aspects are tested

All five aspects (fastness to rubbing, perspiration, light and washing, durability of function) are tested

**Weight / Dol Scores:** See excel document

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