

# **BLUE ANGEL**

**The German Ecolabel**



**Textile Fabrics made from Recycled Plastics**

**DE-UZ 193**

**Basic Award Criteria**

**Edition August 2014**

**Version 1**

**The Environmental Label is supported by the following four institutions:**



The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety is the owner of the label. It regularly provides information on the decisions taken by the Environmental Label Jury.



The German Environmental Agency with its specialist department for "Ecodesign, Eco-Labeling and Environmentally friendly Procurement" acts as office of the Environmental Label Jury and develops the technical criteria of the Basic Criteria for Award of the Blue Angel.



The Environmental Label Jury is the independent, decision-making body for the Blue Angel and includes representatives from environmental and consumer associations, trade unions, industry, the trade, crafts, local authorities, academia, the media, churches, young people and the German federal states.



The RAL gGmbH is the awarding body for the Environmental Label. It organises the process for developing the relevant award criteria in independent expert hearings – which involve all relevant interest groups.

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**This document is a translation of a German original. In case of dispute, the original document should be taken as authoritative.**

# 1 Introduction

## 1.1 Preface

In cooperation with the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, the German Environmental Agency and considering the results of the expert hearings conducted by RAL gGmbH, the Environmental Label Jury has set up these Basic Criteria for the Award of the Environmental Label. RAL gGmbH has been tasked with awarding the Environmental Label.

Upon application to RAL gGmbH and on the basis of a Contract on the Use of the Environmental Label to be concluded with RAL gGmbH, the permission to use the Environmental Label may be granted to all products, provided that they comply with the requirements as specified hereinafter.

The product must comply with all the legal requirements in the country in which it is to be marketed. The applicant shall declare that the product meets this requirement.

## 1.2 Background

So-called "post-consumer waste" from private households, agriculture, trade and industry accounts for by far the largest proportion of the total amount of plastic waste generated. Only a fraction of this waste has been recycled up to now. From an ecological point of view, high-quality recycling of materials is generally viewed as being superior to all other options for reusing these products and it thus appears appropriate to recycle more materials from this plastic waste. The aim of the environmental label is to promote products produced in this way. These Basic Award Criteria apply to textile fabrics; other finished products made out of recycled plastics come under the scope of the Basic Award Criteria for DE-UZ 30a.

In the course of any future update of the environmental label, an extension of the criteria to include those fabrics that are permanently in contact with soil and water will be investigated.

## 1.3 Objective of the environmental label

In order to make consumers clearly aware of the efforts being made in the area of product responsibility, it is necessary to provide transparent and credible product information and product labelling. Therefore, the objective of the environmental label is to highlight those products that meet high environmental standards during their production and which also avoid the use of chemicals that are damaging to health. The environmental label will thus offer guidance for the use of sustainable products by:

- Preserving natural resources through the use of recycled plastics
- Avoiding the use of chemicals in products that are damaging to the environment and health

Therefore, following benefits for the environment and health are stated in the explanatory box:



## 1.4 Compliance with legal regulations

The observance of relevant existing laws and legal requirements is a prerequisite for those products awarded with the environmental label. In particular, the substance requirements defined by the EU Chemicals Regulation REACH (1907/2006/EC)<sup>1</sup> and Regulation EC No. 1272/2008<sup>2</sup> (or Directive 67/548/EEC) are observed.

## 2 Scope

These Basic Award Criteria apply to textile fabrics made out of recycled plastics for facades, advertising and decorative purposes. Home textiles and those textiles that are designed to be used in contact with the skin (e.g. clothing and bags), as well as those designed for permanent contact with water or soil, are excluded from the scope of these Basic Award Criteria.

In the context of these Basic Award Criteria, recycled plastics are those materials recycled using mechanical means. These include milled materials, foil chips, granulates or agglomerates and fibres that have been recycled out of already used products (post-consumer products).<sup>3</sup>

The use of the following is excluded:

- polyvinyl chloride (PVC)
- plastic waste with polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) as flame retardants
- polyurethane formed using fully or partially hydrogenated organic foaming agents

## 3 Requirements

### 3.1 For the raw materials or fibres

#### 3.1.1 Recycled content

The proportion of recycled plastics (post-consumer plastics) in the textiles fabrics must be at least 80%.

#### **Compliance verification**

*The applicant shall declare compliance with the requirement in Annex 1 and submit a product description and brochure material with the application.*

*The origin and composition of the recycled plastics used in the product shall be verified by the applicant in the form of a certificate (including a report) in accordance with the EuCertPlast certification scheme (with calculated and plausibly justified verification of the proportion of post-consumer plastics used).*

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<sup>1</sup> Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC; Official Journal of the European Union L 396 P. 1

<sup>2</sup> Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, as well as amending Regulation (EC) No. 1907/2006

<sup>3</sup> Furthermore, the Environmental Label Jury can expand the scope of validity at any time.

Furthermore, the applicant shall specify the qualitative and quantitative composition of the product named in the application i.e. the proportions of recycled plastics and new materials.

The records and the results shall be checked, evaluated for their plausibility and confirmed in the form of a test report in accordance with Annex 2 to the Contract pursuant to DE-UZ 193 by an independent specialist body at the site where the product is produced.

An independent specialist body is an independent environmental verifier in accordance with Article 9 of the German Environmental Audit Act (Umweltauditgesetz) for approval area 38 (recycling, waste disposal) or a publicly certified expert in accordance with Article 36 of the German Industrial Code for the Specialist Areas of Waste Recycling, Waste Disposal Technology, Plastic Recycling, Plastic Technology and the Disposal of Packaging (Gewerbeordnung für die Sachgebiete Abfallverwertung, Abfalltechnik, Kunststoffrecycling, Kunststofftechnik bzw. Verpackungsentsorgung).

The verification (Annex 2) shall be provided once a year and must be submitted by the end of the first quarter of the following year.

An independent specialist body is:

- an independent environmental verifier in accordance with Article 9 of the German Environmental Audit Act (Umweltauditgesetz) for approval area 38 (recycling, waste disposal) or
- a publicly certified expert in accordance with Article 36 of the German Industrial Code for the Specialist Areas of Waste Recycling, Waste Disposal Technology, Plastic Recycling, Plastic Technology and the Disposal of Packaging (Gewerbeordnung für die Sachgebiete Abfallverwertung, Abfalltechnik, Kunststoffrecycling, Kunststofftechnik bzw. Verpackungsentsorgung) or
- an environmental verifier in accordance with Directive (EG) No. 1221/2009 Article 2, Definition no. 20. If the verification checks are carried out by environmental verification organisations (i.e. not by natural persons), the person responsible for the completion of the tests shall be specifically named by the organisation.

### **3.1.2 Antimony in polyester fibres**

The amount of antimony in the polyester fibres shall not exceed 260 mg/kg.

#### **Compliance verification**

The applicant shall declare in Annex 1 either that antimony free polyester fibres from food packaging have been used and submit a corresponding declaration from the supplier (Annex 3) or verify compliance with the above-mentioned requirement. If fibres containing antimony have been used, the applicant shall submit a test report from the supplier of the fibres to verify compliance with this requirement. The test shall be carried out using the following method: direct determination by atomic absorption spectrometry. The test shall be carried out on the raw fibre prior to any wet processing.

### **3.1.3 Wastewater from the textile finishing process**

The requirements placed on wastewater at the discharge point (direct discharge) and those placed on waste water before mixing in wastewater treatment plants (direct and indirect

discharge) in accordance with the German Waste Water Ordinance (Abwasserverordnung)<sup>4</sup>, Annex 38 Points C and D for direct discharge or D for indirect discharge shall be observed.

#### **Compliance verification**

*The applicant shall declare compliance with the requirement in Annex 1 and, in the case of production locations in Germany, submit confirmation from the supervisory authorities or a comparable test report to verify compliance with the requirements in accordance with Annex 38 Points C and D (for direct discharge) or Point D (for indirect discharge) of the German Waste Water Ordinance (Abwasserverordnung). In the case of production locations outside of Germany, equivalent verification of compliance with the stipulated values shall be verified (values and compliance verifications in accordance with DE-UZ 154 Textiles, Requirements 3.3.4.1 and 3.3.4.2) (Annex 4).*

#### **3.1.4 Emissions to air in the textile finishing process**

In the thermosetting, thermosoling, coating, impregnating or finishing of textiles, including the associated drying facilities, the sum of the organic substances as total carbon shall not exceed 0.8 g C per kg of textiles.

In addition, a maximum of 0.4 g C per kg of textiles may be emitted from carry-overs from upstream processes and from residual preparations in each case.

#### **Compliance verification**

*The applicant shall declare compliance with the requirement in Annex 1 and submit confirmation from the textile finishing plant to verify compliance with this requirement (Annex 4).*

*In addition, the operator of the textile finishing plant shall submit either a report in accordance with Appendix A with the projected emissions based on the substance emission factors or a test report in accordance with DIN EN 12619. In the case of a test carried out in accordance with DIN EN 12619, the product-related emission factor shall be determined from the measured concentration value and the actual air/product ratio. The calculation formula, including an example calculation, can be found in Appendix A.*

*In the case of production locations in Germany, it is possible to alternatively submit confirmation from the relevant supervisory authority to verify compliance with the requirements in accordance with No. 5.4.10.23 of the German Clean Air Directive (TA Luft).*

#### **3.1.5 Degradability of textile auxiliaries**

At each facility where wet processing is carried out, at least 95 % by weight of the ingredients of the fabric softening agents, complexing agents and detergents used shall be readily degradable or eliminable in wastewater treatment plants.

#### **Compliance verification**

*The applicant shall declare compliance with the requirement in Annex 1 and submit confirmations from the textile finisher or the chemical suppliers (Annex 5).*

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<sup>4</sup> German Waste Water Ordinance (Abwasserverordnung) in the version published on 17 June 2004 (BGBl. I P. 1108, 2625), which was last amended by Article 5 Paragraph 8 of the law from 24 February 2012 (BGBl. I P. 212).



The applicant shall submit additional documentation (safety data sheets and/or test reports) to verify compliance with the requirements. One of the following test methods can be used to verify compliance with the requirements. The applicant shall specify which test method was used and state the corresponding individual test results when submitting the application. Substances are considered to be readily biodegradable when one of the following criteria is fulfilled:

- a) At least the following degradation rates shall be achieved in a 28-day test for ready biodegradability:
  - (i) Tests based on dissolved organic carbon: 70 %;
  - (ii) Tests based on oxygen consumption or carbon dioxide generation: 60 % of the theoretical maximum.

This degree of biodegradation must be achieved within 10 days of the beginning of the degradation phase starting with the day when 10% of the substance has been degraded, unless the substance has been identified as a UVCB (unknown or variable compositions, complex reaction products or biological materials) or as a complex multi-constituent substance with structurally similar constituents. In this case, and when there is sufficient reason, the 10-day window shall not be applied and the 28-day result shall be applicable instead, or:

- b) In those cases where only BOD or COD data are available, the BOD/COD ratio is at least 0.5 or
- c) If other convincing scientific evidence is available to demonstrate that the substance can be degraded (biotically or abiotically) in the aquatic environment by more than 70% within 28 days.

The following methods for determining the biodegradation and removal in sewage treatment plants can be used: OECD 301 A-F; OECD 302B, OECD 310, methods OECD 303<sup>5</sup>, ISO 10708 (not available as OECD standard). The corresponding ISO standards and REACH methods<sup>6</sup> shall be recognized as equivalent.

### 3.2 Requirements for the pretreatment and finishing processes

#### 3.2.1 General exclusion of substances with certain properties

The following products may not be added to the product:

- a) Substances which are identified as particularly alarming under the European Chemicals Regulation REACH (1907/2006/EC)<sup>7</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>8</sup>. If the substance is part of a preparation (a mixture), its concentration must not exceed 0.1% by mass. If a stricter, more specific concentration limit is specified for a substance in a

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<sup>5</sup> <http://www.oecd.org>

or

[http://www.oecd.org/findDocument/0,2350,en\\_2649\\_34377\\_1\\_1\\_1\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/findDocument/0,2350,en_2649_34377_1_1_1_1_1_1_1,00.html)

<sup>6</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:142:0001:0739:DE:PDF>

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:220:0001:0094:de:PDF>

<sup>7</sup> Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

<sup>8</sup> The list of candidates in its relevant version can be found at:

[http://echa.europa.eu/chem\\_data/authorisation\\_process/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp)

mixture in the criteria of the Dangerous Preparations Directive (1999/45/EG) or the GHS Regulation (EC/1272/2008) then this is valid.

- b) Substances which according to the criteria of Regulation (EC) No 1272/2008<sup>9</sup> (or Directive 67/548/EEC) are assigned the following H Phrases (R Phrases) named in the table or which meet the criteria for such classification.<sup>10</sup>

If the substance is part of a preparation (a mixture) then its concentration may not exceed the general generic cut-off values according to the Dangerous Preparations Directive (1999/45/EG) or the GHS Regulation (EC/1272/2008). If a stricter, more specific concentration limit is specified for a substance in a mixture then this is valid.

- c) The following are exempt from regulations a) and b): Impurities in concentrations that are not specified in the safety data sheet. The components listed in the safety data sheet must correspond with the regulations according to Annex II, No. 3, of the REACH regulation (EC/1907/2006).<sup>11</sup>

If the substance in this case is part of a preparation (a mixture) then its concentration may not exceed the general generic cut-off values according to the Dangerous Preparations Directive (1999/45/EG) or the GHS Regulation (EC/1272/2008). If a stricter, more specific concentration limit is specified for a substance in a mixture then this is valid.

- d) The following shall be exempt from regulation b): Monomers or additives that turn into polymers during the manufacture of plastics or are chemically (covalently) bound to the plastic if their residual concentrations are below the classification thresholds for mixtures.
- e) Upon evaluation by the Federal Environmental Agency (Umweltbundesamt), further exemptions from regulation b) may be adopted, provided that these are technologically non-substitutable substances and consumer safety continues to be guaranteed. A list of the permitted exceptions can be found in Appendix B.

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<sup>9</sup> Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, as well as amending Regulation (EC) No. 1907/2006 (GHS Regulation).

The GHS Regulation (Global Harmonization System) that came into force on 20 January 2009, replaces the old Directives 67/548/EEC (Dangerous Substances Directive) and 1999/45/EC (Dangerous Preparations Directive). According to the said regulation, substances are classified, labelled and packed until 1 December 2010 according to Directive 67/548/EEC while mixtures (formerly preparations) are classified, labelled and packed until 1 June 2015 according to Directive 1999/45/EC. Thereafter, the GHS Regulation shall be applied. The new indications of danger (H Phrases) as well as the hitherto applicable risk phrases (R Phrases) shall be indicated for substances until 1 June 2015.

<sup>10</sup> The harmonized classifications and labellings of dangerous substances can be found in Part 3 of Annex VI to Regulation (EC) No 1272/2008 (GHS Regulation). Table 3.1 lists classifications and labellings according to the new system using H Phrases; Table 3.2 lists classifications and labellings according to the old system using R Phrases. The GHS Regulation can be found, for example, at: [http://www.reach-info.de/ghs\\_verordnung.htm](http://www.reach-info.de/ghs_verordnung.htm). In addition, a comprehensive classification and labelling inventory is to be made publicly accessible on the ECHA website from 1 December 2010 that will additionally contain all self-classifications for hazardous materials made by the manufacturers.

EC Regulation 1272/2008 (GHS Regulation)	Directive 67/548/EEC (Dangerous Substances Directive)	Wording
<b>Toxic substances</b>		
H300	R28	Fatal if swallowed
H301	R25	Toxic if swallowed
H304	R65	May be fatal if swallowed and enters airways
H310	R27	Fatal in contact with skin
H311	R24	Toxic in contact with skin
H330	R26	Fatal if inhaled
H331	R23	Toxic if inhaled
H370	R39 in combination with R23, R24, R25, R26, R27 and/or R28	Causes damage to organs
H371	R68 in combination with 20, 21 and/or 22	May cause damage to organs
H372	R48 in combination with R23, R24 and/or R25	Causes damage to organs
H373	R48 in combination with 20, 21 and/or 22	May cause damage to organs
<b>Carcinogenic, mutagenic and reprotoxic substances:</b>		
H340	R46	May cause genetic defects
H341	R68	Suspected of causing genetic defects
H350	R45	May cause cancer
H350i	R49	May cause cancer if inhaled
H351	R40	Suspected of causing cancer
H360F	R60	May damage fertility
H360D	R61	May damage the unborn child
H360FD	R60/61	May damage fertility. May damage the unborn child
H360Fd	R60/63	May damage fertility. Suspected of damaging the unborn child
H360Df	R61/62	May damage the unborn child. Suspected of damaging fertility
H361f	R62	Suspected of damaging fertility
H361d	R63	Suspected of damaging the unborn child
H361fd	62/63	Suspected of damaging fertility. Suspected of damaging the unborn child
H362	R64	May cause harm to breast fed children
<b>Water-hazardous substances</b>		
H400	R50	Very toxic to aquatic life
H410	R50/53	Very toxic to aquatic life with long-lasting effects
H411	R51/53	Toxic to aquatic life with long-lasting effects
<b>Other Health and Environmental Effects</b>		
EUH059	R59	Hazardous to the ozone layer

### **Compliance verification**

*The applicant shall declare compliance with the requirement in Annex 1 and submit confirmation from the textile finisher in accordance with Annex 6 to verify compliance with the requirements.*

*The brand/trade name and also the chemical names of the additives used shall be stated. If requested to do so by RAL GmbH, the applicant shall submit current safety data sheets in German or English for all additives or added preparations.*

### **3.2.2 Prohibition of the use of certain groups of substances**

These special substance requirements apply in addition to the general substance requirements or make them more concrete by once again explicitly pointing out particularly problematic substances for certain processing steps.

- a) The use of aromatic or halogenated solvents is not permitted.
- b) Quaternary ammonium compounds are not permitted. Siliconequats and esterquats may be used, provided that they meet the requirements in Paragraph 3.2.1.
- c) The use of the surfactants and complexing agents listed in Appendix A, No. 2, is not permitted and they must also not be present in any of the preparations or formulations used.
- d) The use of synthetic nanomaterials<sup>12</sup> in the production process or the finishing process is not permitted.
- e) The use of chlorinated bleaching agents in the pretreatment process is not permitted.
- f) The use of biocidal products, as defined in the Biocide Directive (EU) No. 528/2012<sup>13</sup>, and biostatic products<sup>14</sup> is not permitted. In-can preservatives in concentrations that do not need to be listed in the safety data sheet shall be exempted from this requirement.
- g) The use of perfluorinated and polyfluorinated chemicals (PFCs) is not permitted.
- h) No halogenated flame retardants may be added to the product. Any flame retardant materials added to the product must comply with the requirements under 3.2.1.
- i) The flame-retarding effect should preferably be achieved by use of flame-resistant fibres or by means of the structure of the fabric.

### **Compliance verification**

*The applicant shall declare compliance with the requirements in Annex 1 and submit confirmation from the textile finisher to verify compliance with these requirements (Annex 7). If flame retardant materials have been added, the applicant shall name and identify them using their CAS Registry No. to RAL gGmbH.*

### **3.2.3 Testing for harmful substances**

The end product must fulfil the test criteria for the OEKO-TEX® Standard 100<sup>15</sup> for product class IV or higher.

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<sup>12</sup> The definition of this term shall be based on DIN CEN ISO/TS 27687:2008-11.

<sup>13</sup> Regulation (EU) No. 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products

<sup>14</sup> All substances with an inhibitory effect on growth and reproduction shall be considered as biostatic products.

<sup>15</sup> [https://www.oeko-tex.com/de/manufacturers/test\\_criteria/test\\_criteria.html](https://www.oeko-tex.com/de/manufacturers/test_criteria/test_criteria.html)

If the raw material (yarn) fulfils the test criteria for the OEKO-TEX® Standard 100 for product class IV then the testing of the end product can be omitted insofar as it is only subjected to physical processes.

#### **Compliance verification**

*The applicant shall declare compliance with the requirement in Annex 1 and submit the OEKO-TEX® 100 certificate or an equivalent test report.*

### **3.2.4 Requirements for the printing or dyeing processes**

#### **3.2.4.1 General requirements for printing pastes and dyes**

The printing pastes and dyes used in the products shall comply with the requirements in Paragraph 3.2.1.

Furthermore, the printing pastes or dyes may not use any halogenated carriers, aromatic or halogenated solvents or surfactants and complexing agents that are listed in Appendix C, No. 2.

#### **Compliance verification**

*The applicant shall declare compliance with the requirement in Annex 1 and submit corresponding declarations from the printing supplier or dyeing factory (Annex 8). The brand/trade name and also the chemical names of the dyes or printing pastes used shall be stated. If requested to do so by RAL GmbH, the applicant shall submit current safety data sheets in German or English.*

#### **3.2.4.2 Printing pastes**

The printing pastes used for impregnating, printing or coating the product shall not contain more than 5 % volatile organic compounds (VOC: any organic compound having a vapour pressure of 0.01 kPa or more at 293.15 K, or having a corresponding volatility under the particular conditions of use).

#### **Compliance verification**

*The applicant shall declare in Annex 1 either that no printing pastes have been used or that they comply with the above-mentioned requirements and submit a corresponding declaration from their printing supplier or dyeing factory (Annex 8). If printing pastes have been used, the applicant shall submit a test report/suitable documentation<sup>16</sup> from the textile finisher to verify compliance with this requirement.*

#### **3.2.4.3 Chlorinated benzenes and toluenes**

The use of the chlorinated benzenes and toluenes listed in Appendix C, No. 3, is not permitted in the dyed materials or the end product.

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<sup>16</sup> This could include reports on a test of the printing pastes for VOCs, when it is not possible to calculate the VOC content, for example, if the VOC content of a component is not available. Other relevant documents could be safety data sheets and supplier declarations on the VOC content in the components, declarations from the textile finisher or the formula used for calculating the VOC content.

### **Compliance verification**

*The applicant shall declare compliance with the requirements in Annex 1 and submit corresponding declarations from the printing supplier or dyeing factory (Annex 8). In addition, the applicant shall submit test results in accordance with the DIN 54232:2010-08 test process. Certificates in accordance with the Öko-Tex Standard 100 will also be recognised. The content of these compounds shall not exceed 1 mg/kg.*

#### **3.2.4.4 Dyes**

No azo dyes shall be used that may cleave to any of the aromatic amines listed in Appendix C, No.1. Furthermore, no disperse dyes or pigments that are carcinogenic, mutagenic or toxic to reproduction may be used in the dyes, nor any potentially sensitising dyes or dyes containing heavy metals, as listed in Appendix C, No. 1.

### **Compliance verification**

*The applicant shall declare compliance with the requirements in Annex 1 and submit corresponding declarations from the printing supplier or dyeing factory (Annex 8). In addition, the applicant shall submit a test report that verifies that the dyes listed in Appendix C, No. 1, have not been used. The test shall be carried out in accordance with DIN EN 14362-1 and DIN EN 14362-3 (the detection limit for azo dyes shall be 20 mg/kg in each case) and DIN 54231 (the detection limit for disperse dyes shall be 50 mg/kg in each case). Suitable test methods (in-house methods used at the testing laboratory) will be accepted as verification about carcinogenic disperse dyes. Certificates in accordance with the Öko-Tex Standard 100 will also be recognised.*

### **3.3 Packaging**

The plastics used for the packaging of the product are not permitted to contain any halogenated polymers.

### **Compliance verification**

*The applicant shall declare compliance with the requirement in Annex 1 and submit a sample of the product packaging (photo) to RAL gGmbH.*

### **3.4 Advertising using the Blue Angel ecolabel**

If the product named in Paragraph 2 is printed then it is only permissible to label the product itself with the Blue Angel ecolabel when it does not convey any content. Otherwise, it is only permissible to print the sentence "Printed on fabric awarded with the "Blue Angel" ecolabel" ("Gedruckt auf Gewebe ausgezeichnet mit dem umweltzeichen „Blauer Engel").

## **4 Applicants and Parties Involved**

Manufacturers or distributors of final products according to Paragraph 2 shall be eligible for application.

Parties involved in the award process are:

- RAL gGmbH to award the Blue Angel Environmental Label,
- the federal state being home to the applicant's production site,

- Umweltbundesamt (German Environmental Agency) which after the signing of the contract receives all data and documents submitted in applications for the Blue Angel in order to be able to further develop the Basic Award Criteria.

## **5 Use of the Environmental Label**

The use of the Environmental Label by the applicant is governed by a contract on the use of the Environmental Label concluded with RAL gGmbH.

Within the scope of such contract, the applicant undertakes to comply with the requirements under Paragraph 3 while using the Environmental Label.

Contracts on the Use of the Environmental Label are concluded to fix the terms for the certification of products under Paragraph 2. Such contracts shall run until December 31, 2019. They shall be extended by periods of one year each, unless terminated in writing by March 31, 2019 or March 31 of the respective year of extension.

After the expiry of the contract, the Environmental Label may neither be used for labelling nor for advertising purposes. This regulation shall not affect products being still in the market.

The applicant (manufacturer) shall be entitled to apply to RAL gGmbH for an extension of the right to use the ecolabel on the product entitled to the label if it is to be marketed under another brand/trade name and/or other marketing organisations.

The Contract on the Use of the Environmental Label shall specify:

- Applicant (manufacturer/distributor)
- Brand/trade name, product description
- Distributor (label user), i.e. the above-mentioned marketing organisations.

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## Appendix A Calculation of the air emission in the textile finishing process

Substance emission factors are provided as part of the product information by manufacturers of textile auxiliaries.

The substance emission factor is defined as the amount of substance in grams that may be emitted under defined process conditions (curing time, temperature, substrate) by 1 kg of the textile auxiliary.

### 1. Calculation of the product-related emission factor from the substance emission factors:

$$WF_c = \Sigma(FA \times FK \times f_c)$$

THM: Textile auxiliary

WF<sub>c</sub>: Product-related emission factor in g of total carbon per kg of textile material

FA: Liquor pickup in kg of liquor per kg of textile material

FK: Liquor concentration in g of textile auxiliary per kg of liquor

f<sub>c</sub>: Total carbon substance emission factor in g of total carbon per gram of textile auxiliary

### 2. Calculation of the product-related emission factors of two formulas (by way of example):

Liquor	THM	FK [g/kg]	FA [kg/kg]	f <sub>c</sub> [g/g]	FK x FA x f <sub>c</sub>	WF <sub>c</sub> [g/kg]
<b>Formula 1</b>	Fatty acid ester	20	0.65	0.0152	0.2	
	Polysiloxane	20	0.65	0.0052	0.07	
	Reactant crosslinking agent with catalyst	100	0.65	0.0009	0.06	
	Stearyl urea derivative with catalyst	20	0.65	0.0162	0.21	
<b>Total 1</b>						<b>0.54</b>
<b>Formula 2</b>	Softening agent	50	1	0.005	0.25	
	Crease-resistant finish, formaldehyde-free	12	1	0.010	0.12	
	Catalyst	12	1	0.008	0.1	
	<b>Total 2</b>					<b>0.47</b>

### 3. Calculation of the product-related emission factor from the measured concentration:

The air/product ratio (LWV) in m<sup>3</sup>/kg is firstly calculated from the measured waste gas flow (V) (in m<sup>3</sup>/h) of all emission points of a thermal treatment unit and the product throughput (W) (in kg/h):

$$LWV = V/W$$



If multiple thermal treatment units are connected to a waste gas cleaning plant, the weighted LWV is determined by dividing the total waste gas flow by the total product throughput.

$$WF_C = LWV \times \Sigma c_C$$

THM: Textile auxiliary

WF<sub>C</sub>: Product-related emission factor in g of total carbon per kg of textile material

LWV: Air/product ratio in m<sup>3</sup> waste gas per kg of textile material

c<sub>C</sub>: measured concentration in g of total carbon per m<sup>3</sup> of waste gas

## **Appendix B Exemptions according to Paragraph 3.2.1**

Upon evaluation by the Umweltbundesamt (Federal Environmental Agency) further exemptions from regulation b) may be adopted under Paragraph 3.2.1, Section e), provided that these are technologically non-substitutable substances and consumer safety continues to be guaranteed.

The following shall be exempt from regulation b):

- Fatty alcohol ethoxylates used as substitutes for alkylphenol ethoxylates (APEOs)
- Hydroxymethane sulfinic acid sodium salt used as a reducing agent for direct printing with vat dyes and as a discharge agent for white and coloured discharged printing
- Octamethyl cyclotetrasiloxane as a residue in silicone-based softening agents

The exemption for these substances only applies to their use in mixtures and if the weight percentage of the substance in the mixture does not cause the mixture to be assigned the H phrases (R phrases) listed in the table (Paragraph 3.3.1 of the Basic Award Criteria).

Also exempt from regulation b) are:

- Ammonia for use in pigment printing and coating, provided that low-emission formulas are used. This means the ammonia emissions must be less than 0.6 g NH<sub>3</sub>/kg of product, based on an air/product ratio of 20 m<sup>3</sup>/kg of product. The emissions shall be calculated on the basis of Appendix A of the Basic Criteria.

## **Appendix C Dyes and pigments, Surfactants and complexing agents , Chlorinated benzenes and toluenes that are not permitted**

### **1. Dyes and pigments that are not permitted:**

- **Azo dyes** shall not be used that may cleave to any one of the following aromatic amines (in accordance with Directive 2002/61/EG):
  - ♦ 4-Aminobiphenyl (92-67-1),
  - ♦ Benzidine (92-87-5),
  - ♦ 4-chloro-o-toluidine (95-69-2),
  - ♦ 2-naphtylamine (91-59-8),
  - ♦ o-amino-azotoluene (97-56-3),
  - ♦ 2-amino-4-nitrotoluene (99-55-8),
  - ♦ p-chloroaniline (106-47-8),
  - ♦ 2,4-diaminoanisol (615-05-4),
  - ♦ 4,4'-diaminodiphenylmethane (101-77-9),
  - ♦ 3,3'-dichlorobenzidine (91-94-1),
  - ♦ 3,3'-dimethoxybenzidine (119-90-4),
  - ♦ 3,3'-dimethylbenzidine (119-93-7),
  - ♦ 3,3'-dimethyl-4,4'-diaminodiphenylmethane (838-88-0),
  - ♦ p-cresidine (120-71-8),
  - ♦ 4,4'-methylene-bis-(2-chloro-aniline) (101-14-4),
  - ♦ 4,4'-oxydianiline (101-80-4),
  - ♦ 4,4'-thiodianiline (139-65-1),
  - ♦ o-toluidine (95-53-4),
  - ♦ 2,4-diaminotoluene (95-80-7),
  - ♦ 2,4,5-trimethylaniline (137-17-7),
  - ♦ 4-aminoazobenzene (60-09-3),
  - ♦ o-anisidine (90-04-0).
  
- **Dyes that are carcinogenic, mutagenic or toxic to reproduction** (based on Decision 2009/567/EC (EU-UZ for textile products):
  - ♦ C.I. Basic Red 9 C.I. 42 500,
  - ♦ C.I. Disperse Blue 1 C.I. 64 500,
  - ♦ C.I. Acid Red 26 C.I. 16 150,
  - ♦ C.I. Basic Violet 14 C.I. 42 510,
  - ♦ C.I. Disperse Orange 11 C.I. 60 700,
  - ♦ C.I. Direct Black 38 C.I. 30 235,
  - ♦ C.I. Direct Blue 6 C.I. 22 610,
  - ♦ C.I. Direct Red 28 C.I. 22 120,
  - ♦ C.I. Disperse Yellow 3 C.I. 11 855.
  - ♦ Disperse Yellow 23 C.I. 26 070
  - ♦ Disperse Orange 149

- **Potentially sensitising dyes** (based on Decision 2009/567/EC):
  - ♦ C.I. Disperse Blue 3 C.I. 61 505,
  - ♦ C.I. Disperse Blue 7 C.I. 62 500,
  - ♦ C.I. Disperse Blue 26 C.I. 63 305,
  - ♦ C.I. Disperse Blue 35,
  - ♦ C.I. Disperse Blue 102,
  - ♦ C.I. Disperse Blue 106,
  - ♦ C.I. Disperse Blue 124,
  - ♦ C.I. Disperse Brown 1,
  - ♦ C.I. Disperse Orange 1 C.I. 11 080,
  - ♦ C.I. Disperse Orange 3 C.I. 11 005,
  - ♦ C.I. Disperse Orange 37,
  - ♦ C.I. Disperse Orange 76 (previously designated Orange 37)
  - ♦ C.I. Disperse Red 1 C.I. 11 110,
  - ♦ C.I. Disperse Red 11 C.I. 62 015,
  - ♦ C.I. Disperse Red 17 C.I. 11 210,
  - ♦ C.I. Disperse Yellow 1 C.I. 10 345,
  - ♦ C.I. Disperse Yellow 3 C.I. 11 855,
  - ♦ C.I. Disperse Yellow 9 C.I. 10 375,
  - ♦ C.I. Disperse Yellow 39,
  - ♦ C.I. Disperse Yellow 49.
  
- **Dyes containing heavy metals**
  - ♦ Dyes and pigments containing cadmium, mercury, lead or nickel.

## 2. Surfactants and complexing agents

- Surfactants and complexing agents that are not permitted:
  - ♦ alkylphenoxyethoxylates (APEO)
  - ♦ linear alkylbenzene sulfonates (LAS)
  - ♦ bis(hydrogenated tallow alkyl) dimethyl ammonium chloride (DTDMAC)
  - ♦ distearyl dimethyl ammonium chloride (DSDMAC)
  - ♦ di(hardened tallow) dimethyl ammonium chloride (DHTDMAC)
  - ♦ ethylene diamine tetra acetate (EDTA) and diethylene triamine penta acetate (DTPA)

### **3. Chlorinated benzenes and toluenes**

- Chlorinated benzenes and toluenes that are not permitted:
  - ◆ Chlorobenzenes
  - ◆ Dichlorobenzenes
  - ◆ Trichlorobenzenes
  - ◆ Tetrachlorobenzenes
  - ◆ Pentachlorobenzenes
  - ◆ Hexachlorobenzenes
  - ◆ Chlorotoluenes
  - ◆ Dichlorotoluenes
  - ◆ Trichlorotoluenes
  - ◆ Tetrachlorotoluenes
  - ◆ Pentachlorotoluene