BLUE ANGEL

The German Ecolabel

Low-Emission Upholstered Furniture

DE-UZ 117

Basic Award Criteria

Edition January 2018

Version 3

The Environmental Label is supported by the following four institutions:

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

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.

Umwelt Bundesamt

The German Environmental Agency with its specialist department for "Ecodesign, Eco-Labelling 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.

Jury Umweltzeichen

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.

RAL gGmbH

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.

If you require further information please contact:
RAL gGmbH
RAL UMWELT
Fränkische Straße 7
53229 Bonn
Tel: +49 (0) 228 / 6 88 95 - 0
E-Mail: umweltzeichen@ral.de
www.blauer-engel.de

Version 1 (01/2018): First Edition, Expiry date: December 31, 2022
Version 1.2: Editorial change (Appendix B)
Version 1.3: Editorial change (3.1, 3.2)
Version 1.4: Editorial change (3.9.1)
Version 1.5: Editorial change (3.9.2)
Version 1.6: Editorial change (3.6)
Version 1.7: Editorial change (3.5.7)
Version 1.8: Editorial change (3.5.5)
Version 2 : Prolongation without any change for 4 years, until 31.12.2026
Version 2.1: Editorial change (3.1, Appendix A)
Version 3 (04/2023): Editorial change (3.7.1)

Table of contents

1 Introduction ... 6
1.1 Preface ... 6
1.2 Background ... 6
1.3 Objectives of the environmental label ... 6
2 Scope ... 7
3 Requirements ... 7
3.1 General substance requirements ... 7
3.2 Requirements for wood ... 8
3.2.1 Origin of the wood ... 8
3.2.2 Formaldehyde in wood-based materials ... 9
3.3 Requirements for metals ... 9
3.4 Leather ... 10
3.4.1 Preservatives ... 10
3.4.2 Chrome tanning ... 10
3.4.3 Dyes and pigments ... 11
3.4.4 Chloroparaffins/chloralkanes ... 11
3.4.5 Perfluorinated and polyfluorinated chemicals ... 11
3.4.6 Alkylphenol ethoxylates and alkylphenols ... 11
3.4.7 Flame retardants ... 11
3.4.8 Organotin compounds ... 12
3.4.9 Extractable heavy metals ... 12
3.4.10 Nanomaterials ... 12
3.4.11 Origin of raw hides and skins ... 12
3.5 Textiles and coated textiles ... 13

3.5.1 Dyes and pigments ... 13
3.5.2 Biocides ... 13
3.5.3 Chloroparaffins/chloralkanes ... 14
3.5.4 Perfluorinated and polyfluorinated chemicals ... 14
3.5.5 Alkylphenol ethoxylates and alkylphenols ... 14
3.5.6 Organotin compounds ... 14
3.5.7 Extractable heavy metals ... 14
3.5.8 Flame retardants ... 15
3.5.9 Dimethylformamide in artificial leather and polymer coatings ... 15
3.5.10 Nanomaterials ... 15
3.6 Moth proofing (contrary to Paragraph 3.5.2) ... 15
3.7 Upholstery materials ... 16
3.7.1 Flame retardants ... 16
3.7.2 Latex foam ... 16
3.7.3 Polyurethane foam (PUR) ... 17
3.7.4 Coconut fibres ... 17
3.8 Coating systems ... 17
3.8.1 Liquid coating systems ... 18
3.8.2 Special substance requirements for liquid coating systems ... 18
3.9 Use ... 18
3.9.1 Indoor air quality ... 18
3.9.2 Odour testing ... 22
3.10 Packaging ... 22
3.11 Fitness for use ... 22
3.12 Wearing parts ... 23
3.13 Recycling and disposal ... 23
3.14 Consumer information ... 23
3.15 Advertising claims ... 24
3.16 Social criteria ... 24
4 Applicants and Parties Involved ... 24
5 Use of the Environmental Label ... 24
Appendix A Assignment of hazard categories and hazard statements ... 26
Appendix B Indoor air quality ... 27

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

Upholstered furniture can cause environmental pollution during their manufacture, use and disposal. This is why the requirements for the environmental label focus on the entire life cycle of the upholstered furniture. They refer to the manufacturing process and the substances and materials added to the product, as well as the service life of the product and the disposal of used upholstered furniture and the packaging materials used for the transportation of new furniture.

1.3 Objectives of the environmental label

The environmental label for upholstered furniture identifies furniture that – above and beyond the legal regulations:

- are manufactured in an environmentally friendly manner – this especially applies to leather, textiles and upholstery materials
- are manufactured using materials that place less burden on the environment
- do not contain any harmful substances that have a detrimental impact during the recycling process

The use of wood from sustainable forestry and low-emission wood-based materials is supported. Therefore, the following benefits for the environment and health are stated in the explanatory box:

www.blauer-engel.de/uz117

- low emissions
- low pollutant content
- no adverse impact on health in the living environment

2 Scope

These Basic Award Criteria apply to ready-to-use upholstered furniture for use indoors according to DIN 68880 that are not primarily – more than 50% by volume – made from wood and/or wood-based materials (chipboards, coreboards, fibreboards, veneer-faced panels, whether uncoated or coated) and would thus come under the scope of the environmental label DE-UZ 38 "Low-emission products made of wood and wood-based materials". These Basic Award Criteria also apply to upholstered furniture that can sometimes be used for sleeping. Upholstered furniture (bed mattresses) that are primarily designed for sleeping come under the scope of the environmental label DE-UZ 119.

3 Requirements

The products named under Paragraph 2 can be labelled with the environmental label for "Low-Emission Upholstered Furniture" if they fulfil the following requirements:

3.1 General substance requirements

Observance of the legal regulations according to European and German chemical law is a prerequisite; in the case of upholstered furniture, this includes, in particular, the REACH Regulation[1] Annexes XIV and XVII, the POP Regulation[2] Annex I, GefStoffV, VdL Guideline 01[3], the Industrial Emissions Regulation[4], the 25th BImSchV[5], the Biocidal Products Regulation[6], the Decopaint Regulation[7] and the CLP Regulation[8,9]

In addition, the materials (leather, textiles, upholstery materials, coating materials[10], adhesives, etc.) used for the product are not permitted to contain any substances with the following properties as a constituent component[11]:

---

1 Regulation (EC) No. 1906/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), in short REACH

2 Regulation (EC) No. 850/2004 on persistent organic pollutants

3 VdL Guideline 01: Guideline for declaring ingredients in construction coatings and paints and related products http://www.wirsindfarbe.de/service-publikationen/vdl-richtlinien/

4 Regulation 2010/75/EU on industrial emissions

5 25th Ordinance for the implementation of the Federal Immission Protection Act (ordinance for limiting emissions in the titanium dioxide industry)

6 Regulation (EU) No. 528/2012 concerning the making available on the market and use of biocidal products

7 Directive 2004/42/EC on the limitation of emissions of volatile organic compounds (VOC) due to the use of organic solvents in certain paints and varnishes

8 Regulation(EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures, short: CLP Regulation (Classification, Labelling and Packing). It replaces the old directives 67/548/EEC (Dangerous Substances Directive) and 1999/45/EC (Dangerous Preparations Directive).

9 If other legal regulations also apply to specific products, these also need to be observed.

10 The materials used for the product must fulfil the requirements under point 3.1.2 General material requirements for coating systems of DE-UZ 38.

11 Constituent components are substances added to the product as such or as part of a mixture in order to achieve or influence certain product properties and those required as chemical cleavage products for achieving the product properties. This does not apply to residual monomers that have been reduced to a minimum.

- Substances which are identified as particularly alarming under the European Chemicals Regulation REACH and which have been incorporated into the list drawn up in accordance with Article 59, Paragraph 1 of the REACH[1] Regulation (so-called "list of candidates"[12]).
- Substances that according to the CLP Regulation[8] have been classified in the following hazard categories or which meet the criteria for such classification[13].
  - Carcinogenic in categories Carc. 1A or Carc. 1B
  - Germ cell mutagenic in categories Muta. 1A or Muta. 1B
  - Reprotoxic (teratogenic) in categories Repr. 1A or Repr. 1B
  - Acute toxicity (poisonous) in categories Acute Tox. 1 or Acute Tox.2
  - Specific target organ toxicity in categories STOT SE 1, STOT SE 2, STOT RE 1 or STOT RE 2

  The corresponding H phrases for the hazard classes and categories can be found in Appendix A.

- Substances that are classified in TRGS 905[14] as:
  - Carcinogenic (K1, K2)
  - Mutagenic (M1, M2
  - Teratogenic (R_F1, R_F2, R_E1, R_E2)

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1. In addition, the applicant shall state the brand names and suppliers of all individual primary/intermediate products or individual parts of the upholstered furniture, as well as their proportions and function in the manufactured end product (Annex 2).
All suppliers (cover fabrics and upholstery materials, coatings and plastics[15] with prolonged skin contact) shall declare their compliance with the requirements in Annex 3 to 7 and submit the technical specifications and safety data sheets if requested to do so by RAL gGmbH.

3.2 Requirements for wood

3.2.1 Origin of the wood

It must be ensured that all of the wood processed originates from legal sources. In addition, at least 50% of the wood and 50% of the primary raw materials for the wood-based materials must be sourced from sustainably managed forests that can verify that they are managed in an ecological and socially responsible manner.

---

[12] The list of candidates in its currently valid version can be found at: http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp.

[13] Substances with further hazardous properties (including CMR substances of category 2) are not excluded here, but reduced by the emission assessment according to the AgBB scheme (see section 3.9.1 Indoor air quality).

[14] TRGS 905, directory of carcinogenic, mutagenic or teratogenic substances from the Committee for Hazardous Substances (AGS): TRGS 905. The current version at the time of application is valid. The CMR complete list published by the Institute for Occupational Safety and Health of the German Social Accident Insurance can also be used as a reference tool (amalgamation of the CMR substances according to the CLP Regulation and TRGS 905): CMR complete list.

[15] Plastics: this refers to virgin plastics and not to recyclates

Compliance verification

The applicant shall verify the legality of the wood sources in accordance with EU Regulation 995/2010[16].
Compliance with the requirement for using wood from sustainable forestry can by verified in the following ways:

- *If the applicant is certified themselves according to FSC or PEFC criteria for the chain of custody (CoC), the applicant shall submit the relevant certificate. No further evidence is required in this case.*
- *If the applicant is not certified, the applicant shall submit appropriate certificates from its raw material suppliers. Certificates from the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification Schemes (PEFC) verifying sustainable forestry and a chain of custody (CoC) will be accepted. The applicant shall present a record of the woods used that specifies the percentage of the certified woods used (Annex 2 to the contract DE-UZ 38).*
- *The applicant shall submit other appropriate verifications according to Appendix A of DE-UZ 38 (Annex 3 to the contract DE-UZ 38).*

3.2.2 Formaldehyde in wood-based materials

Wood-based products that have been awarded the environmental label according to DE-UZ 76 may be used to manufacture products according to Paragraph 2. If the wood-based materials used to manufacture the product have not been awarded the environmental label according to DE-UZ 76, they must not exceed a formaldehyde steady state concentration of 0.1 ppm in the test chamber in their raw state i.e. prior to machining or coating.

Compliance verification

The applicant shall state the manufacturer and product name of the wood-based material that has been awarded the environmental label according to DE-UZ 76. For wood-based materials that have not yet been awarded the environmental label according to DE-UZ 76, the applicant shall submit a test report in accordance with DE-UZ 76.

3.3 Requirements for metals

Note: The following requirements must only be complied with if the relevant proportion of the metals accounts for more than 50% of the weight of the upholstered furniture.
It is not permitted for any chromium (VI) or cadmium to be used in the galvanising processes for the end product.
Nickel is only permitted in the galvanising processes if the rate of nickel release from the nickel-plated components according to the standard EN 1811 is less than 0.5 µg/cm^2 per week.

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1. In addition, the applicant shall submit a manufacturer's declaration from the suppliers of the metal components verifying that no galvanising treatments using substances containing chromium (VI) or cadmium have been used. (Annex 4)

[16] OJ L 295 from November 2010

If nickel has been used in the galvanising processes, the applicant shall also submit a test report according to the standard EN 1811 verifying the rate of nickel release per week.

3.4 Leather

Leather that have been awarded the environmental label DE-UZ 148 may be used to manufacture products according to Paragraph 2. If the leather used for the product has not been awarded the environmental label according to DE-UZ 148, it must comply with Paragraphs 3.4.1 to 3.4.11.

3.4.1 Preservatives

As an exception to Paragraph 3.1 (General substance requirements), preservatives must comply with Appendix A to DE-UZ 148. Chemical preservation for the transportation and storage of raw hides, as well as tanned semi-finished products (wet blue, wet white), must be avoided as far as possible. Chemical preservation of the finished leather, including the coatings, is not permitted[17].

Compliance verification

The applicant shall submit either a declaration from the leather supplier (Annex 3) that provides complete unbroken verification (from slaughter through to the finished leather) that the leather has not been chemically preserved or a declaration from the leather supplier stating which preservatives were used, including verification of the preservative content in accordance with Appendix A of DE-UZ 148. The test method is described in Appendix A to DE-UZ 148.

3.4.2 Chrome tanning

A test to determine the chromium (VI) content with and without a stress test is required for leather, whereby it is not permitted for chromium (VI) to be detected (detection limit 3 mg/kg). The test must be repeated by the leather suppliers at least every six months and submitted to the manufacturer of the upholstered furniture on request. If the test detects a chromium (VI) content higher than the detection limit of 3 mg/kg, the leather supplier must inform the manufacturer of the upholstered furniture immediately.

Compliance verification

The applicant shall submit a test report according to DIN EN ISO 17075 (February 2008) verifying that chromium (VI) could not be detected (detection limit 3 mg/kg). The sample shall be taken in accordance with EN ISO 2418. The ground/cut leather sample shall be examined with and without a stress test (ageing test). To perform a stress test, the ground/cut leather sample (single piece approx. 0.5 x 0.5 cm) is first stored for 24 hours at a temperature of 80°C in a drying chamber without convection at a humidity of < 5%. After 24 hours, the sample is taken out of the drying chamber, cooled in a desiccator for at least 30 minutes and examined in accordance with DIN EN ISO 17075 within 2 hours of taking it out of the drying chamber. The general conditions must be stated in the event of any deviations. The total chromium content is determined in accordance with DIN EN ISO 17072-2 via total digestion.

[17] In-can preservatives of type PT 6 are not taken into account.

3.4.3 Dyes and pigments

It is not permitted to use the dyes and pigments listed in Appendix C to DE-UZ 148.

Compliance verification

The applicant shall submit either a declaration from the leather supplier (Annex 3) that the substances named in Appendix B to DE-UZ 148 have not been used or verification in accordance with DIN EN 17234-1 and the measurement results in accordance with the test method DIN EN ISO 17234-1, as well as the measurement results for 4-aminoazobenzene in accordance with the test method DIN EN ISO 17234-2:2011. The maximum limit in each case is 20 mg/kg.

3.4.4 Chloroparaffins/chloralkanes

No chloralkanes may be used.

Compliance verification

The applicant shall submit declarations from the leather suppliers confirming compliance with this requirement (Annex 3a) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.
In addition, the applicant shall submit a test report in accordance with DIN EN ISO 18219:2012 (Leather - Determination of chlorinated hydrocarbons in leather - Chromatographic method for short-chain chlorinated paraffins) verifying the content of short-chain chloralkanes. The detection limit for short-chain chloralkanes is 100 mg/kg and this value must not be exceeded.

3.4.5 Perfluorinated and polyfluorinated chemicals

It is not permitted for any perfluorinated or polyfluorinated chemicals (PFC), such as fluorocarbon resins and fluorocarbon emulsions, perfluorinated sulfonic and carboxylic acids, and substances that could be broken down into these chemicals to be added to the leather.

Compliance verification

The applicant shall submit declarations from the leather suppliers confirming compliance with this requirement (Annex 3a) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.

3.4.6 Alkylphenol ethoxylates and alkylphenols

The use of alkylphenol ethoxylates (APEO) and their derivatives is not permitted.

Compliance verification

The applicant shall submit declarations from the leather suppliers confirming compliance with this requirement (Annex 3a) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers. Alternatively, the applicant shall submit a test report for a test performed using solvent extraction and GC-MS determination or LC-MS determination according to DIN EN ISO 18218, Parts 1 and 2. The content of alkylphenol ethoxylates and alkylphenols must not exceed the limit value of 100 mg/kg in each case.

3.4.7 Flame retardants

No flame retardants may be added to the product.

Compliance verification

The applicant shall submit declarations from the leather suppliers confirming compliance with this requirement (Annex 3a) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.

3.4.8 Organotin compounds

It is not permitted to add any tin in organic form (tin bonded to a carbon).

Compliance verification

The applicant shall submit declarations from the leather suppliers confirming compliance with this requirement (Annex 3a) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.

3.4.9 Extractable heavy metals

The limit values stated in the table must not be exceeded by the following heavy metals.

Extractable heavy metals	Limit values
Chromium in chromium-tanned leather	200 mg/kg
Cobalt	4 mg/kg
Copper	50 mg/kg

Compliance verification

The applicant shall submit declarations from the leather suppliers confirming compliance with this requirement (Annex 3a) and also a test report in accordance with DIN EN ISO 17072-1. The sample shall be prepared in accordance with EN ISO 4044, whereby the samples shall be completely ground.

3.4.10 Nanomaterials

The use of synthetic nanomaterials[18] in the production process or the finishing process is not permitted.

Compliance verification

The applicant shall submit declarations from the leather suppliers confirming compliance with this requirement (Annex 3a) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.

3.4.11 Origin of raw hides and skins

Raw hides and skins must be sourced from agricultural animals (i.e cattle, calves, goats, sheep, pigs)[19] that are primarily kept for milk and/or meat production. Endangered species are expressly prohibited. In the case of non-European raw hides and skins (e.g. wet blue), the traceability

[18] The definition of this term is based on DIN CEN ISO/TS 27687:2010-02 or the corresponding EU recommendation (2011/696/EU)

[19] Other livestock may be added by the Federal Environmental Agency.

requirements in the sense of Protocol 6.5 from the Working Group[20] for a level of traceability of at least 50% must be observed.

Compliance verification

The applicant shall submit declarations from the leather suppliers confirming compliance with this requirement (Annex 3a).

3.5 Textiles and coated textiles

The requirements under 3.5.1 to 3.5.10 apply to the textile cover fabrics on the upholstered furniture, whereby the use of PVC in the coated covers (artificial leather[21]) is not permitted.
The requirements in Paragraphs 3.5.1 to 3.5.7 are also deemed to have been fulfilled if the textiles have been awarded one of the following certificates: Oeko-Tex 100, product class II[25], EU Eco-Label for textiles[22], GOTS[26], IVN Best[23] or Blue Angel DE-UZ 154 Textiles.

Compliance verification

The applicant shall submit a certificate for the cover material used that is valid at the time of application or a contract that verifies that the textiles are authorised to carry the stated environmental and quality mark or the applicant shall submit verification of compliance with Paragraphs 3.5.1 to 3.5.9.

3.5.1 Dyes and pigments

It is not permitted to use the dyes and pigments listed in Appendix C to DE-UZ 148.

Compliance verification

The applicant shall submit declarations from its textile suppliers in accordance with Annex 3b verifying that these materials have not been used or the applicant shall submit verifications in accordance with the test methods stated in DIN 54231[24] or the OEKO-Tex Standard 100[25].

3.5.2 Biocides

In the case of cover fabrics made of vegetable natural fibres, wool and other animal fibres (for multi-fibre textile products from ≥5%), the requirements for pesticides in OEKO-Tex Standard 10025 or GOTS[26] must be observed.

Compliance verification

The applicant shall submit test results according to a test method (extraction, clean-up, determination via LC-MS/MS, GC-MS, GC-ECD § 64LF GB L00.00-34 and L00.00-114) stated in Oeko-Tex Standard 100 or GOTS for the cover fabric.

---

[20] www.leatherworkinggroup.com
[21] Artificial leather: According to DIN 16922, materials designed to be used as artificial leather that have characteristics and/or surface designs (e.g. texture) that are in part similar to real leather.
[22] Commission decision 2014/350/EU from 5 June 2014
[23] Standard issued by the Internationaler Verband der Naturtextilwirtschaft e.V. (International Association of Natural Textiles), edition 2015
[24] Textiles - Detection of disperse dyestuffs
[25] Oeko-Tex 100, test methods and limit values in the version valid at the time of application
[26] Global Organic Textile Standard http://www.global-standard.org/de/

3.5.3 Chloroparaffins/chloralkanes

No chloralkanes may be used.

Compliance verification

The applicant shall submit declarations from the textile suppliers confirming compliance with this requirement (Annex 3b) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.

3.5.4 Perfluorinated and polyfluorinated chemicals

It is not permitted for any perfluorinated or polyfluorinated chemicals (PFC), such as fluorocarbon resins and fluorocarbon emulsions, perfluorinated sulfonic and carboxylic acids, and substances that could be broken down into these chemicals to be added to the leather.

Compliance verification

The applicant shall submit declarations from the textile suppliers confirming compliance with this requirement (Annex 3b) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.

3.5.5 Alkylphenol ethoxylates and alkylphenols

The use of alkylphenol ethoxylates (APEO) and their derivatives is not permitted.

Compliance verification

The applicant shall submit declarations from the textile suppliers verifying compliance with this requirement (Annex 3b) and a test report for a test performed using solvent extraction and GC-MS determination or LC-MS determination according to DIN EN ISO 18254, Parts 1 and 2. The content of alkylphenol ethoxylates and alkylphenols must not exceed the limit value of 100 mg/kg in total.

3.5.6 Organotin compounds

It is not permitted to add any tin in organic form (tin bonded to a carbon).

Compliance verification

The applicant shall submit declarations from the textile suppliers confirming compliance with this requirement (Annex 3b) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.

3.5.7 Extractable heavy metals

The extractable heavy metals must comply with Appendix 4 of OEKO-TEX Standard 100, product class II.

Compliance verification

The applicant shall submit declarations from the textile suppliers confirming compliance with this requirement (Annex 3b) and also a test report in accordance with DIN 54233-2 or DIN EN 16711-2[27]. The extraction process shall be carried out using an acid artificial-perspiration solution within

[27] Test reports in accordance with the Oeko-Tex Standard 100 will also be recognised.

4 hours at 37°C. Chromium (VI) can be determined according to method DIN 38405-24 (D-24), although the detection limit must not exceed 0.5 mg/kg.

3.5.8 Flame retardants

No flame retardants may be added to the product. An exception to this requirement is made for halogen-free reactive flame retardants that are fully embedded in the polymer (covalent bonding).

Compliance verification

The applicant shall submit declarations from the textile suppliers confirming compliance with this requirement (Annex 3b) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers. If reactive flame retardants have been added, this shall be stated.

3.5.9 Dimethylformamide in artificial leather and polymer coatings

The concentration of dimethylformamide in artificial leather or polymer coatings based on polyurethane must not exceed a value of 10 mg/kg.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1. If artificial leather or polymer coatings based on polyurethane have been used, the applicant shall submit a confirmation from its suppliers (Annex 3b) verifying that no dimethylformamide was used and shall enclose a corresponding test report. The test shall be carried out using methanol extraction and GC-MS determination.

3.5.10 Nanomaterials

The use of synthetic nanomaterials[28] in the production process or the finishing process is not permitted.

Compliance verification

The applicant shall submit declarations from the textile suppliers confirming compliance with this requirement (Annex 3b) and, if requested to do so by RAL gGmbH, a declaration from the corresponding chemical suppliers.

3.6 Moth proofing (contrary to Paragraph 3.5.2)

In the case of cover fabrics made of wool and other animal fibres (for multi-fibre textile products from ≥50%), permethrin may be added for the purpose of moth proofing. An effective **defence against moths** is provided using between 35 and 75 mg/kg and **against bugs** using between around 75 and 100 mg/kg. Concentrations between 1.0 mg/kg and 35 mg/kg are thus considered to be a contamination with no functionality against moths and are thus not permitted. In the case of permethrin concentrations between 35 mg/kg and 100 mg/kg, the manufacturer is obligated to include the following sentence in the consumer information:

"The product contains permethrin to protect the product against wool pests".

[28] The definition of this term is based on DIN CEN ISO/TS 27687:2010-02 or the corresponding EU recommendation (2011/696/EU)

Concentrations above 100 mg/kg are not permitted.

The cover fabrics must be tested using the test methods stated for detecting biocides (3.5.2). In the case of cover fabrics that have not been protected against wool pests, the total limit values for pesticides including permethrin stated in GOTS or Öko-Tex Standard 100 must not be exceeded.

Compliance verification

The applicant shall submit test results according to a test method (extraction, clean-up, determination via LC-MS/MS, GC-MS, GC-ECD § 64LF GB L00.00-34 and L00.00-114) stated in Oeko-Tex Standard 100 or GOTS for the cover fabric. In addition, the applicant shall submit the consumer information.

3.7 Upholstery materials

Note: The following requirements must only be complied with if the relevant proportion of the upholstery materials accounts for more than 5% of the total volume of the upholstered furniture.

3.7.1 Flame retardants

No flame retardants may be added to the product. An exception to this requirement is made for halogen-free reactive flame retardants that are fully embedded in the polymer (covalent bonding), as well as for solid flame retardants (aluminium trihydrate, expanded graphite, ammonium polyphosphate).

Compliance verification

The applicant shall submit declarations from the upholstery material suppliers confirming compliance with this requirement (Annex 5).

3.7.2 Latex foam

Chlorophenols, butadienes, nitrosamines and carbon disulphide must not be detectable in the latex foam or as an emission. The following substance-specific maximum limits apply:

- Chlorophenols (including salts and esters) < 1 mg/kg

Compliance verification

The applicant shall submit a test report for a test carried out in accordance with one of the following methods: Milling of a sample of 5 g, extraction of the chlorophenols or sodium/potassium salts and subsequent derivatisation using acetic anhydride. Analysis using gas chromatography (GC), verification using a mass spectrometer or ECD.

- Butadiene < 1 mg/kg

Compliance verification

The applicant shall submit a test report for a test carried out in accordance with one of the following methods: Milling and weighing of sample. Sampling performed using headspace sampling. Analysis using gas chromatography, verification using the flame ionisation detector method.

- N-nitrosamine* (test chamber measurement)< 1 µg/m^3

Compliance verification

The applicant shall submit a test report for a test chamber test according to Paragraph 3.9.1. The analysis of the N-nitrosamine shall be carried out according to the BGI 505-23 method (formerly ZH 1/120.23) recognised by the HVGB (German Federation of institutions for statutory accident insurance) or a comparable method using gas chromatography in combination with a TEA detector (Thermal Energy Analyzer). The test shall be carried out on the 7th day after preparing the test sample.

(*) especially N-nitrosodimethylamine (NDMA), N-nitrosodiethylamine (NDEA), N-nitrosomethylethylamine (NMEA),
N-nitrosodi-i-propylamine (NDiPA), N-Nitrosodi-n-propylamine (NDPA), N-Nitrosodi-n-butylamine (NDBA),
N-nitrosopyrrolidinone (NPYR), N-nitrosopiperidine (NPIP), N-nitrosomorpholine (NMOR).

- Carbon disulphide (test chamber measurement)< 20 µg/m^3

Compliance verification

The applicant shall submit a test report for a test chamber test according to Paragraph 3.9.1.

3.7.3 Polyurethane foam (PUR)

The following requirements apply to organic tin, plasticizers and physical blowing agents with polyurethane foam:

- It is not permitted to use any tin in organic form (tin bonded to a carbon).
- Plasticizers must not be intentionally added.
- It is not permitted to add halogenated organic compounds as physical blowing agents or auxiliary blowing agents.

Compliance verification:

The applicant shall submit declarations from the PUR foam suppliers confirming compliance with this requirement (Annex 5).

3.7.4 Coconut fibres

The requirements for latex foam must be observed for rubber-coated coconut fibres.

Compliance verification:

The applicant shall either declare in Annex 1 that no rubber-coated coconut fibres have been used or submit corresponding test reports as stated under the requirements for latex foam.

3.8 Coating systems

(Only needs to be observed if the product contains coated wood or metal surfaces)

Coating systems are generally used on the upholstered furniture for design purposes and in order to protect the wood or metal surfaces. These coating systems include stains, primers, clear varnishes, top-coats, powder coatings, adhesives, etc.

3.8.1 Liquid coating systems

The coating materials used in liquid coating systems must not exceed a maximum VOC content of 420 g/l. An exemption is made for small parts that account for less then 5% of the total volume. Irrespective of the VOC content for the individual coating material, this requirement is considered to be fulfilled if it can be verified that, when taking into account the quantity of the coating material used, the total VOC content for the entire coating system does not exceed a maximum value of 420 g/l.
An exception is made here for painting plants that are equipped with a waste gas purification system that meets the requirements of the 31st BImSchV[29]) and the German Clean Air Directive - TA Luft[30]).

3.8.2 Special substance requirements for liquid coating systems

The liquid coating system must comply with the requirements of VdL Guideline 02 Declaration of Wood Paint Systems[31]), especially those in Section 3.

Compliance verification:

The applicant shall submit a declaration from the coating system manufacturer in accordance with Annex 6 verifying compliance with the requirements 3.8.1 to 3.8.2 and submit the technical specifications and safety data sheets according to Article 31 and Annex II of the REACH Regulation (EC) No. 1907/2010 in its current version[32]) in either German or English.

3.9 Use

3.9.1 Indoor air quality

Based on the "Health-related Evaluation Procedure for Volatile Organic Compounds Emissions (VOC) from Building Products" developed by the Committee for Health-Related Evaluation of Building Products, products according to Paragraph 2 must not exceed the following emission values in the test chamber[33]. The test may be stopped prematurely (but not before the 7th day after charging) if on each of four consecutive measurement days the admissible emission values

---

[29] 31st Ordinance for the implementation of the Federal Immission Protection Act (ordinance for limiting the emission of volatile organic compounds due to the use of organic solvents in certain installations – 31st BImSchV) from 21 August 2001 (BGBl. I P. 2180), which was last amended by Article 5 of the law from 24 March 2017 (BGBl. I S. 656).

[30] First General Administrative Regulation for the Federal Immission Protection Act (Technical Instructions on Air Quality Control - TA Luft) from 24 July 2002, GMBl. 2002, volume 25 – 29, p. 511 – 605

[31] Guideline on the Declaration of Wood Paint Systems, VdL-RL 02 (2nd revision), Verband der Lackindustrie e.V., May 2001

[32] REACH Regulation Article 31 and Annex II of the REACH Regulation (EC) No. 1907/2010 in its current version, Article 31 and Annex II of the REACH Regulation (EC) No. 1907/2010 in its current version

[33] For an average-sized living room with an air exchange rate of 0.5/h, the requirements for VOC emissions are designed to limit the contribution made by upholstered furniture to the VOC content in the indoor air after 28 days to 300 µg/m³.

are not exceeded and if during this period none of the substances to be detected shows a rise in concentration.

a) The following applies to a textile-covered armchair:

Substance	3rd day	Final value (28th day)	Final value (28th day)
	Test chamber concentration	Product-specific emission rate per armchair[34]	Test chamber concentration
Formaldehyde		≤ 240 µg/h	≤ 60 µg/m³ (0.05 ppm)
Other aldehydes[35] (total)		≤ 240 µg/h	≤ 60 µg/m³
Total organic compounds within the retention range C6 – C16 (TVOC)	-	≤ 1800 µg/h	≤ 450 µg/m³
Total organic compounds within the retention range > C16 – C22 (TSVOC)	-	≤ 320 µg/h	≤ 80 µg/m³
C-substances[36]	≤ 10 µg/m³ **Total**		≤ 1 µg/m³ **Per individual substance**
R-substances without LCI[36]			≤ 20 µg/m³ **Total**
Total VOC without LCI [36,37]			≤ 100 µg/m³
R-value[36]	-		≤ 1

The values stated in Appendix B are valid for all types of chairs and upholstered office chairs, upholstered beds (single beds) or two-seat sofas/three-seat sofas.

[34] The surface of an armchair does not provide a suitable basis for calculating the load (complicated and very inaccurate calculation process). Therefore, the emissions from an armchair are measured in the test chamber at an air flow rate of 4.0 m³/h. The product-specific emission rate is then calculated by multiplying the test chamber concentration by the air flow rate of 4.0 m³/h.

[35] Other aldehydes that can be determined using a BAM test method (method for the measurement of emissions of formaldehyde and other volatile compounds). Aldehydes can also be determined using the DNPH method (DIN ISO 16000-3).

[36] C-substance = carcinogenic substances, according to the EU classifications Carc. 1A and 1B, as well as TRGS 905;
R-substances = reprotoxic substances, according to the EU classifications Repr. 1A and 1B, as well as TRGS 905;
LCI = Lowest Concentration of Interest;
R-value= total of all quotients (Ci / LCIi) < 1 (where Ci = substance concentration in the chamber air; see "Health-related Evaluation Procedure for Volatile Organic Compounds Emissions (VOC) from Building Products",

[37] Including non-identifiable substances

b) The following applies to leather and coated textiles (artificial leather):

Substance	3rd day	Final value (28th day)
Formaldehyde		≤ 60 µg/m³ (0.05ppm)
Other aldehydes[35] (total)		≤ 60 µg/m³
Total organic compounds within the retention range C6 – C16 (TVOC)	-	≤ 450 µg/m³
Total organic compounds within the retention range > C16 – C22 (TSVOC)	-	≤ 80 µg/m³
C-substances[36]	≤ 10 µg/m³ **Total**	≤ 1 µg/m³ **Per individual substance**
R-substances without LCI[36]		≤ 20 µg/m³ **Total**
Total VOC without LCI [36,37]		≤ 100 µg/m³
R-value[36]	-	≤ 1

Compliance verification

The applicant shall submit a test report in accordance with the BAM test method[38] (Method for the detection of emissions of formaldehyde and other volatile compounds)) based on the standards DIN EN ISO 16000-9, DIN EN ISO 16000-10[39] and DIN EN 16516[40], which was issued by a testing institute recognized for this test by BAM (Bundesanstalt für Materialforschung und Prüfung (Federal Institution for Material Research and Testing), verifying compliance with this requirement.

In contrast to the BAM test method named above, one textile-covered armchair from a series of upholstered furniture[41] that does not differ substantially in terms of the materials (frame, foam, adhesives, cover fabrics, etc.) used from the other models in the series will be tested as a whole body under the following conditions in a test chamber:

- *Air flow rate for an armchair (irrespective of the size of chamber and armchair): 4 m³/h[42]*
- *Chamber size: about 2 – 10 m³ and about four times the size of the armchair(s).*

The other parameters (temperature, air humidity, air speed) should be the same as the BAM test method.

---

38 Official Gazette of the Federal Institute for Materials Research and Testing, volume 29, 1999 p.234-250

39 DIN EN ISO 16000 – Indoor air - Part 9: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test chamber method and Part 10: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test cell method

40 DIN EN 16516 "Assessment of release of dangerous substances - Determination of emissions into indoor air"

41 If the series of upholstered furniture only consists of leather-covered models, one piece of white upholstered furniture is used for the whole body test (complete piece of upholstered furniture without the leather cover).

42 Upholstered beds (single beds) or two-seat sofas: an air exchange rate of 8 m³/h; all types of chairs and upholstered office chairs: an air exchange rate of 2 m³/h. Three-seat sofas: an air exchange rate of 12 m³/h, see Appendix B for values.

Due to its high relevance for emissions, a special emissions test is carried out on the leather. For this purpose, the test institute shall select representative test samples in cooperation with the manufacturer of the upholstered furniture and the tannery in order to guarantee that the respective series complies with the requirements. Small test chambers (e.g. 20 litres) or emission tests cells are suitable for testing the leather components. The leather is tested rear to rear in the test chamber. During this process, it must be guaranteed that the surface-specific flow rate of 1.5 m^3/m^2h is maintained for the entire testing period (28 days).

3.9.2 Odour testing[43]

The test for the odour characteristics should be carried out in accordance with DIN ISO 16000-28 together with the emission test for Paragraph 3.9.1 (indoor air quality). As an alternative to DIN ISO 16000-28, an odour test in accordance with RAL-GZ 430 is also possible.
If RAL-GZ 430 is used, a value ≤ 3.0 should be achieved.

Outlook: In the next revision of the Basic Award Criteria, DIN ISO 16000-28 will be made an obligatory requirement. A PI value of 5-7 will be set as the target value; this value is currently still being discussed.

Compliance verification

The applicant shall submit a test report in accordance with DIN ISO 16000-28 in combination with VDI 4302 for the initial test.
Alternatively, the applicant shall submit a test report in accordance with RAL-GZ430.

3.10 Packaging

If possible, upholstered furniture should be packaged so that the outgassing of volatile materials is possible after the manufacturing process.

Compliance verification

The applicant shall submit a description of the packaging system and declare that the packaging system has been designed to allow the outgassing of volatile components or shall state the reasons why such packaging is not possible.

3.11 Fitness for use

The upholstered furniture must meet the normal quality standards for its fitness for use (e.g. safety, abrasion resistance, tensile strength, light fastness, rub fastness, deformation under pressure in accordance with existing ISO/EN/DIN standards).

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1.

---

[43] In the first period covered by the Basic Award Criteria, the odour parameters must be determined by testing institutions but will not result in a rejection of the application. In the meeting to revise the Basic Award Criteria, these results will be taken into account when deciding on whether to include these values.

3.12 Wearing parts

The provision of functionally compatible spare parts for those parts of the upholstered furniture subject to wear e.g. hinges and pull-out components must be guaranteed for at least 5 years.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1.

3.13 Recycling and disposal

With regards to recycling and disposal, no material protection agents (fungicides, insecticides, flame-retardants) and no halogenated organic compounds (e.g. chloroorganic carriers in textiles, chlorinated paraffins in leather oil, halogenated organic plastics) may be added to the upholstered furniture, including the materials used for their manufacture (leather, textiles, foams, wood-based materials, adhesives, etc.). An exception is made for biocides that are exclusively designed for the pot preservation of aqueous coatings and adhesives, preservatives for transport preservation of hides and tanned semi-finished products (covered in Paragraph 3.4.1), moth proofing of textiles made of animal fibres (covered in Paragraph 3.6), adhesives based on aqueous dispersions and the flame retardants permitted according to 3.5.8 and 3.7.1.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 and submit corresponding declarations from its suppliers in accordance from Annex 1 to 7.

3.14 Consumer information

Consumer information must be enclosed with the upholstered furniture which – possibly in combination with other information – provides at least the following information:

- Information on wearing parts and their repair or replacement, as well as about a repair service where applicable. The provision of functionally compatible spare parts for these wearing parts must be guaranteed for at least 5 years;
- Information on the type and origin of the predominant wood in accordance with paragraph 3.2.1;
- Information on other materials (proportion > 3 % by mass);
- Information on the tanning process/tanning material including retaining (e.g. chrome tanning, vegetable tanning)
- Information on protection against wool pests for cover fabrics made of animal fibres in accordance with Paragraph 3.6;
- If relevant, information on the assembly of the products;
- If relevant, information on disassembly of the products for when moving to a new apartment/house;
- Information on the wear resistance of the product (area of use and, if relevant, results of material tests, product-specific properties, changes due to use);
- Cleaning and care instructions.

Compliance verification

The applicant shall submit the consumer information.

3.15 Advertising claims

Advertising claims must not include any information such as "tested for its biological living quality" or claims in the sense of Article 25 (4) of the CLP Regulation (EC) No. 1272/20088) that could play down the risks such as e.g. "non-toxic", "non-harmful to health" or similar claims.

It is only permitted to indicate the use of flame retardant agents in the technical information in such a way that does not play down the risks due to the use of flame retardant agents. It is not permitted to use the flame retardant materials to advertise upholstered furniture awarded with the environmental label.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1.

3.16 Social criteria

Fundamental principles and rights with respect to working conditions, as defined in the valid fundamental labour standards of the International Labour Organisation (ILO), must be complied with during the value added chain for the manufacture of the products labelled with the environmental label.

Compliance verification

The manufacturer of the upholstered furniture shall submit a declaration verifying compliance with the requirements for all materials (leather, wood, textiles, upholstery materials, etc.) added to the product in Annex 1.

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, 2026. They shall be extended by periods of one year each, unless terminated in writing by March 31, 2026 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.

© 2021 RAL gGmbH, Bonn

Appendix A Assignment of hazard categories and hazard statements

The following table assigns the hazard categories in Paragraph 3.1 for the general exclusion of substances to the corresponding hazard statements (H Phrases).

Hazard categories	H Phrases	Hazard statements
Carcinogenic substances		
Carc. 1A	H350	May cause cancer.
Carc. 1B	H350	May cause cancer.
Carc. 1A, 1B	H350i	May cause cancer if inhaled.
Germ cell mutagenic substances		
Muta. 1A	H340	May cause genetic defects.
Muta. 1B	H340	May cause genetic defects.
Reprotoxic (teratogenic) substances		
Repr. 1A, 1B	H360D	May damage the unborn child.
Repr. 1A, 1B	H360F	May damage fertility.
Repr. 1A, 1B	H360FD	May damage fertility. May damage the unborn child.
Repr. 1A, 1B	H360Df	May damage the unborn child. Suspected of damaging fertility.
Repr. 1A, 1B	H360Fd	May damage fertility. Suspected of damaging the unborn child.
Acute toxicity substances		
Acute Tox. 1 Acute Tox. 2	H300	Fatal if swallowed
Acute Tox. 3	H301	Toxic if swallowed
Acute Tox. 1 Acute Tox. 2	H310	Fatal in contact with skin
Acute Tox. 3	H311	Toxic in contact with skin
Acute Tox. 1 Acute Tox. 2	H330	Fatal if inhaled
Acute Tox. 3	H331	Toxic if inhaled
Substances with specific target organ toxicity		
STOT SE 1	H370	Causes damage to organs.
STOT SE 2	H371	May cause damage to organs.
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.
STOT RE 2	H373	May cause damage to organs through prolonged or repeated exposure.

Appendix B Indoor air quality

(values for all types of chairs and upholstered office chairs, upholstered beds (single beds) or two-seat sofas/three-seat sofas)

	All	**Armchairs**	**Armchairs**	**Chairs and upholstered office chairs**	**Chairs and upholstered office chairs**	**Upholstered beds (single beds), two or three-seat sofas**	**Upholstered beds (single beds) or two-seat sofas**	**Three-seat sofas**
Substance	**3rd day**	**Final value (28th day)**	**Final value (28th day)**	**Final value (28th day)**	**Final value (28th day)**	**Final value (28th day)**	**Final value (28th day)**	**Final value (28th day)**
	Test chamber concentration	Test chamber concentration	Product-specific emission rate	Test chamber concentration	Product-specific emission rate	Test chamber concentration	Product-specific emission rate	Product-specific emission rate
Air flow rate			4 m³/h		2 m³/h		6 m³/h	8 m³/h
Formaldehyde		≤ 60 µg/h	≤ 240 µg/h	≤ 40 µg/m³ (0.033 ppm)	≤ 80 µg/h	≤ 60 µg/m³ (0.05 ppm)	≤ 480 µg/h	≤ 720 µg/h
Other aldehydes (total)		≤ 60 µg/h	≤ 240 µg/h	≤ 40 µg/m³	≤ 80 µg/h	≤ 60 µg/m³	≤ 480 µg/h	≤ 720 µg/h
Total organic compounds within the retention range $C_6 - C_{16}$ (TVOC)	-	≤ 450 µg/h	≤ 1800 µg/h	≤ 300 µg/m³	≤ 600 µg/h	≤ 450 µg/m³	≤ 3600 µg/h	≤ 5400 µg/h
Total organic compounds within the retention range $> C_{16} - C_{22}$ (TSVOC)	-	≤ 80 µg/h	≤ 320 µg/h	≤ 50 µg/m³	≤ 100µg/h	≤ 80 µg/m³	≤ 640 µg/h	≤ 960 µg/h
C-substances	≤ 10 µg/m³ **Total**	≤ 1 µg/m³ **Per individual substance**		≤ 1 µg/m³ **Per individual substance**		≤ 1 µg/m³ **Per individual substance**		
R-substances without LCI		≤ 20 µg/m³ **Total**		≤ 20 µg/m³ **Total**		≤ 20 µg/m³ **Total**		
Total VOC without LCI		≤ 100 µg/m³		≤ 100 µg/m³		≤ 100 µg/m³		
R-value	-	≤ 1		≤ 1		≤ 1		