

BLUE ANGEL

The German Ecolabel



Resilient Floor Coverings

DE-UZ 120

Basic Award Criteria

Edition February 2011

Version 1.9

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.



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

Resilient floor coverings may have significant environmental impact during the entire life cycle of the product. That is why the requirements for award of the Blue Angel eco-label refer to both the substances and materials used during the manufacturing process and the period of use and the disposal of used floor coverings as well as to the transportation packaging for new floor coverings.

Besides, floor coverings usually cover large indoor surfaces and that is why the lowest-possible emissions from these products are of great value to the user. Here, the Blue Angel eco-label lends itself as an excellent guide to low-emission products. Also, a professional installation of the flooring and the use of further low-emission products for the entire flooring structure (e.g. Low-Emission Floor Covering Adhesives and other Installation Materials according to DE-UZ 113, Low-Emission Sealants for Interior Use according to DE-UZ 123) play an important role in environmental and health protection.

For evaluating the emissions from floor coverings the concept of these Basic Criteria has been developed along the lines of the evaluation scheme established by the "Ausschuss zur gesundheitlichen Bewertung von Bauprodukten" (Committee for Health-Related Evaluation of Building Products) - a federal and länder expert committee representing German environmental and health authorities.

The Blue Angel for low-emission floor coverings may be awarded to products which beyond meeting all legal requirements –

- are manufactured by the use of environmentally less damaging substances and materials,
- are safe and do not pose a health hazard to the living environment and
- do not contain any hazardous substances that would seriously hamper recycling.



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

2 Scope

These Basic Criteria apply to resilient floor coverings designed for use as covering material in indoor environments as well as skirting boards.

These Basic Criteria specifically apply to:

- Plastic floor coverings
- Floor coverings made of natural and synthetic rubber
- Linoleum floor coverings (unless the product falls within the scope of DE-UZ 176)
- Cork floor coverings (unless the product falls within the scope of DE-UZ 176)
- Skirting boards made of plastic

The applicant shall name the relevant product standard in the Annex to the Contract.

The following definitions shall apply following DIN EN 12466¹:

- Floor covering: prefabricated product in sheet or tile form which can be used to cover a floor from wall to wall.
- Resilient: ability to recover after a certain level of compression.
- Skirting: Prefabricated product in the form of bars, which is mounted in the transition from flooring to the wall

The Environmental Label Jury may include additional resilient floor coverings at the suggestion of the German Umweltbundesamt (Federal Environmental Agency).

3 Requirements

The Blue Angel eco-label shown on page 1 may be used for the labelling of products under paragraph 2, provided that they meet the requirements set forth hereinafter:

3.1 Manufacture

3.1.1 General Substance Requirements

The products must not contain as constituents any substances with the following properties (i.e. substances that remain in the final product where they perform a certain function) – which:

[1] are identified as particularly alarming according to the Chemicals Regulation REACH (EC/1907/2006) and which have been incorporated into the list drawn up in accordance with Article 59 (1) of the REACH Regulation (so-called "list of candidates"), as amended at the time of application².

¹ DIN EN 12466 Resilient floor coverings – Vocabulary, 06/1998, as amended.

² For the current version of the List of Candidates please go to:

http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp.

[2] according to the criteria of the Regulation (EC) No. 1272/2008³ (or Directive 67/548/EEC) are assigned the following H Phrases (R Phrases) listed in Table 1 or which meet the criteria for such classification.⁴

Table 1: H and R Phrases applicable to the Award of the Blue Angel Eco-Label

Regulation (EC) 1272/2008 (GHS Regulation)	Directive 67/548/EEC (Dangerous Substance Directive)	Phrase
Toxic Substances		
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	R39/23/24/25/26/27/28	Causes damage to organs
H372	R48/25/24/23	Causes damage to organs
Carcinogenic, Mutagenic and Reprotoxic Substances:		
H340	R46	May cause genetic defects.
H350	R45	May cause cancer.
H350i ⁵	R49	May cause cancer by inhalation.
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.
H362	R64	May cause harm to breast-fed children.

³ Regulation (EC) No 1272/2008, short: GHS Regulation (Globally Harmonized System), that has come into force on January 20, 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 December 1, 2010 according to Directive 67/548/EEC while mixtures (formerly preparations) are classified, labelled and packed until June 1, 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 R Phrases shall be indicated for substances until the 1st of June 2015.

⁴ The harmonized classifications and labelling 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. Moreover, a comprehensive classification and labelling inventory will be made publicly available on the ECHA website from December 1, 2010 which will also include the manufacturers' self-classifications of hazardous substances.

⁵ Except titanium dioxide, because its classification only applies to inhalable powders.

Regulation (EC) 1272/2008 (GHS Regulation)	Directive 67/548/EEC (Dangerous Substance Directive)	Phrase
Water-Hazardous Substances		
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.
Other Health and Environmental Hazards		
EUH059	R59	Hazardous to the ozone layer.

[3] are classified in TRGS 905⁶ as:

- ♦ carcinogenic (K1, K2)
- ♦ mutagenic (M1, M2)
- ♦ reprotoxic (R_F1, R_F2)
- ♦ teratogenic (R_E1, R_E2);

[4] are classified in the MAK Value List⁷ as:

- ♦ carcinogenic working materials, category 1 or category 2⁸
- ♦ germ cell mutagenic working materials, category 1 or category 2.

Compliance Verification:

The applicant shall declare compliance with the requirements according to the Annex to the Contract pursuant to DE-UZ 120.

3.1.2 N-Nitrosamines

Carcinogenic N-nitrosamines according to TRGS 552⁹ may not be detectable in rubber-based floor coverings (detection limit: 3.6 µg/kg, determination limit: 11 µg/kg).

Compliance Verification:

The applicant shall submit a test report according to the DIK-Arbeitsvorschrift „Methoden zur Bestimmung von N-Nitrosaminen in der Luft, Vulkanisaten und Vulkanisationsdämpfen (DIK Working Regulations „Methods for determining N-nitrosamines in the air, vulcanized materials and vulcanized steam – DIK: Deutsches Institut für Kautschuktechnologie (German Institute for Rubber Technology))“¹⁰ prepared by one of the following accredited testing laboratories (Institutes equipped with GC/TEA - Gas Chromatography/Thermal Energy Analyzer - for the analysis of carcinogenic N-nitrosamines. Additional testing laboratories capable of performing

⁶ TRGS 905 List of carcinogenic, mutagenic or reprotoxic substances. Last amended in May 2008, as amended.

⁷ MAK and BAT Value List, Senate Commission for the Testing of Health-Endangering Working Materials, last amended by Communication 46 (2010), as amended.

⁸ Except titanium dioxide, because its classification only applies to inhalable powders.

⁹ TRGS 552 N-nitrosamines. Last amended in May 2007, as amended.

¹⁰ DIK Working Regulations published in: R.Liekefeld, R.H. Schuster, G. Wunsch; Kautschuk, Gummi, Kunststoff (Natural Rubber, Rubber, Plastic), 1991, 44, 514.

these tests may be added to the list upon approval by the German Umweltbundesamt (Federal Environmental Agency)):

- *Deutsches Institut für Kautschuktechnologie e.V., Hannover (DIK - German Institute for Rubber Technology, Hanover)*
- *SGS INSTITUT FRESENIUS GmbH, Taunusstein*

3.1.3 Recyclate Materials

The use of recyclate materials for the manufacture of floor coverings shall not be permitted. The following materials shall be exempt from this rule:

- Waste wood - Category A I according to the Altholzverordnung (German Waste Wood Ordinance)¹¹
- Waste paper grades 1.02 and 1.04 according to EN 643¹²
- Polyvinyl butyral (PVB) from the recycling of glass panes (buildings and motor vehicles)

Additional materials may be added to the list upon approval by the German Umweltbundesamt (Federal Environmental Agency).

This shall not apply to production scrap from the manufacturing of the floor covering.

Compliance Verification:

The applicant shall declare compliance with the requirement in the Annex to the Contract pursuant to DE-UZ 120.

3.1.4 Plasticizers

No plasticizing substances from the class of phthalates may be used in the manufacture of floor coverings.

Compliance Verification:

The applicant shall declare compliance with the requirement in the Annex to the Contract pursuant to DE-UZ 120. In the event of detection, the content of phthalates shall be determined by extraction of a sample and subsequent analysis by use of GC/MS. The quantitative determination of the target substances is achieved by using an internal standard and a reference compound. The floor covering shall not contain more than 0.1 percent by mass of phthalates as impurities.

3.2 Use

3.2.1 Indoor Air Quality

The products under paragraph 2 must not exceed the emission values listed in Table 2 in the test chamber following the „Vorgehensweise bei der gesundheitlichen Bewertung der Emissionen von flüchtigen organischen Verbindungen (VOC und SVOC) aus Bauprodukten“ (health risk assessment process for emissions of volatile organic compounds (VOCs and SVOCs) from building products) developed by the Ausschuss zur gesundheitlichen Bewertung von

¹¹ Verordnung über Anforderungen an die Verwertung und Beseitigung von Altholz (Altholzverordnung – AltholzV)- (Waste Wood Ordinance) (Ordinance on the Requirements Pertaining to the Recovery and Disposal of Waste Wood) dated 15 August 2002 (Federal Law Gazette I p. 3302). Last amended by Article 2 of the ordinance of 9 November 2010 (Federal Law Gazette I p. 1504).

¹² DIN EN 643: Paper and board - European list of standard grades of recovered paper and board, 03/2002.

Bauprodukten (AgBB) (Committee for Health-Related Evaluation of Building Products)¹³. The requirements are aimed at limiting the contribution of floor coverings to the content of volatile organic compounds in the indoor air in an average-sized living room with an air change rate of 0.5 per hour after 28 days to 300 µg/m³.

Table 2: Emission Requirements

Compound or Substance	3rd Day	Final Value (28th Day)
Total organic compounds within the retention range C ₆ – C ₁₆ (TVOC)	< 1000 µg/m ³	< 300 µg/m ³
Total organic compounds within the retention range > C ₁₆ – C ₂₂ (TSVOC)	-	< 30 µg/m ³
Carcinogenic substances ¹⁴	< 10 µg/m ³ total	< 1 µg/m ³ per single value
Total VOC without LCI ¹⁵	-	< 100 µg/m ³
R value ¹⁶	-	< 1
Formaldehyde	-	< 60 µg/m ³ (0.05 ppm)

The test may be stopped from the 7th day after loading if the required final values of day 28 are reached prematurely and if, compared with the measurement of day 3, no rise in the concentration of any of the detected substances has been observed.

Skirting boards shall be tested in accordance with the specifications in DIN EN 16516¹⁷ with a loading of 0.05 m² / m³

Compliance Verification:

The applicant shall submit a test certificate according to Part II of the "Grundsätze des DIBt zur gesundheitlichen Bewertung von Bauprodukten in Innenräumen" (DIBt Guidelines for health-risk assessment of building products in indoor environments)¹⁸, on the basis of DIN EN ISO 16000-9¹⁹ confirming compliance with this requirement. The test certificate shall be prepared by a testing laboratory accredited by BAM for this test (Appendix to the Basic Criteria DE-UZ 120).

¹³ AgBB Evaluation Scheme, May 2010. Published on the homepage of the German Umweltbundesamt (Federal Environmental Agency): <http://www.umweltbundesamt.de/bauprodukte/agbb.htm>, as amended.

¹⁴ Substances classified according to para. 3.1.1 General Substance Requirements, Nos. [2] and/or [3].

¹⁵ LCI = Lowest Concentration of Interest; cf. AgBB evaluation scheme (Footnote 13)

¹⁶ R value = total of all quotients (C_i / LCI_i) < 1 (with C_i = substance concentration in the chamber air, LCI_i = LCI value of the substance), cf. AgBB evaluation scheme (Footnote 13)

¹⁷ DIN EN 16516 - Construction products - Assessment of release of dangerous substances - Determination of emissions into indoor air; German version EN 16516:2017

¹⁸ DIBt (Deutsches Institut für Bautechnik - German Institute for Structural Engineering), Grundsätze zur gesundheitlichen Bewertung von Bauprodukten in Innenräumen (DIBt Guidelines for health-risk assessment of building products in indoor environments), Part II: Bewertungskonzepte für Spezielle Bauprodukte (Evaluation schemes for specific building products), as of October 2008, http://www.dibt.de/de/data/Aktuelles_Ref_II_4_6.pdf, as amended.

¹⁹ 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, 04/2008, as amended.

The applicant shall submit a test protocol as specified in Annex 2 to the BAM-Test Method²⁰ for determining the emissions of volatile organic compounds (VOCs) for award of the Blue Angel eco-label according to DE-UZ 113.

3.2.2 Serviceability

The floor coverings must meet the usual quality requirements for serviceability. For this purpose, the products must meet the requirements of the relevant product standards:

Compliance Verification:

The applicant shall declare compliance with the requirements in the Annex to the Contract pursuant to DE-UZ 120.

3.3 Recycling and Disposal

3.3.1 Halogens

With a view to recycling and disposal no halogenated organic compounds (e.g. as binder, flame retardants) may be used in the manufacture of resilient floor coverings.

Compliance Verification:

The applicant shall declare compliance with the requirement in the Annex to the Contract pursuant to DE-UZ 120. In the event of detection, the content of the halogens fluorine, chlorine and bromine shall be determined by combustion analysis (total dissolution). As a fraction of tolerable impurities the content of the above-mentioned halogens may not exceed 1 gram per kg.

3.3.2 Flame Retardants

If flame retardants are used the following ones may be used: inorganic ammonium phosphates (diammonium phosphate, ammonium poly phosphate etc.), other dehydrating minerals (aluminium hydroxide or the like), or expandable graphite.

Compliance Verification:

The applicant shall declare compliance with the requirement in the Annex to the Contract pursuant to DE-UZ 120.

3.4 Declaration and Consumer Information

The declaration of resilient floor coverings and/or their packagings shall meet the requirements of DIN EN 685²¹. Moreover, the individual floor coverings shall meet the relevant product standards.

The declaration shall include, among other things:

- Identification of manufacturer or supplier company,
- Product name and material,
- Product details (composition),
- Colour/pattern as well as lot and roll number (if applicable),

²⁰ Official Journal of BAM - Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing) Volume 33 (2/2003), p.160 et seq..

²¹ DIN EN 685 Resilient, textile and laminate floor coverings - Classification, 11/2007, as amended.

- Wear resistance class,
- Length, width and thickness or covered surface for rolls or - with respect to tiles - tile dimensions as well as the area in square meters contained in one pack.

A short version of the following instructions and recommendations shall be enclosed with the product, including a note about how the customer may obtain a more detailed version (e.g. upon request to the manufacturer, reference to the manufacturer's website).

- Installation instructions including recommendations for the use of low-emission floor covering adhesives, surfacers and fillers (e.g. according to DE-UZ 113) as well as primers (e.g. according to DE-UZ 12a) the use of which will not increase the indoor air concentration of pollutants by releasing formaldehyde and solvents etc.,
- Cleaning and care instructions,
- Disposal instructions (e.g. return and recycling options).

Compliance Verification:

The applicant shall declare compliance with the requirement in the Annex to the Contract pursuant to DE-UZ 120 and submit the corresponding product information (e.g. technical data sheet).

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

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Appendix A H and R Phrases applicable to the Award of the Blue Angel Eco-Label

Table 1: H and R Phrases applicable to the Award of the Blue Angel Eco-Label

Classification categories	Regulation (EC) 1272/2008 (GHS Regulation))	Directive 67/548/EWG (Dangerous Substance Directive)	Phrase
Toxic Substances			
Akut Tox. 1,2	H300	R28	Fatal if swallowed
Akut Tox. 3	H301	R25	Toxic if swallowed
Akut Tox. 1,2	H310	R27	Fatal in contact with skin
Akut Tox. 3	H311	R24	Toxic in contact with skin
Akut Tox. 1,2	H330	R26	Fatal if inhaled
Akut Tox. 3	H331	R23	Toxic if inhaled
STOT einm. 1	H370	R39/23/24/25/ 26/27/28	Causes damage to organs
STOT wdh. 1	H372	R48/23/24/25	Causes damage to organs
Carcinogenic, Mutagenic and Reprotoxic Substances			
Muta. 1 [A,B]	H340	R46	May cause genetic defects.
Karz. 1 [A,B]	H350	R45	May cause cancer.
Karz. 2	H350i ²²	R49	May cause cancer by inhalation.
Repr. 1 [A,B]	H360F	R61	May damage fertility.
Repr. 1 [A,B]	H360D	R60	May damage the unborn child.
Repr. 1 [A,B]	H360FD	R60/61	May damage fertility. May damage the unborn child.
Repr. 1 [A,B]	H360Fd	R61/62	May damage fertility. Suspected of damaging the unborn child.
Repr. 1 [A,B]	H360Df	R60/63	May damage the unborn child. Suspected of damaging fertility.
Lakt.	H362	R64	May cause harm to breast-fed children.
Water-Hazardous Substances			
Aqu. akut 1	H400	R50	Very toxic to aquatic life.
Aqu. chron. 1	H410	R50/53	Very toxic to aquatic life with long-lasting effects.
Aqu. chron. 2	H411	R51/53	Toxic to aquatic life with long-lasting effects.
Other Health and Environmental Hazards			
Ozon 1	EUH059	R59	Hazardous to the ozone layer.

²² Except titanium dioxide, because its classification only applies to inhalable powders.