

BLUE ANGEL

The German Ecolabel



**Paper bags and boxes
made out of recycled paper**

DE-UZ 217b

Basic Award Criteria

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Version 2

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

The use of recovered paper in the production of packaging paper contributes to the preservation of resources, especially the preservation of ecosystems such as forests, and thus helps to protect species and the climate. Using recovered paper from household and commercial collections supports the high-quality recycling of recovered paper.

In a comparison of their impact on ecological systems, those paper products made from recovered paper perform significantly better in terms of their use of resources, waste water load and water and energy consumption than paper products made from virgin fibres that use wood as a source of fibrous raw materials – when the products have comparable performance characteristics.

The German Environment Agency generally recommends that single-use bags and boxes are replaced with multi-use bags and boxes, this corresponds to the first step of the waste hierarchy – the prevention of waste. However, if these products are not available, the single-use bags and boxes should be as environmentally friendly as possible. Paper bags and boxes made out of recovered paper should meet the highest standards with respect to recyclability so that high-quality recycling of the paper fibres is possible multiple times. Against the background of the regulations in Directive (EU) 2019/904 of 5 June 2019 on the reduction of the impact of certain plastic products on the environment, such as lightweight plastic carrier bags, it is anticipated that there will be greater use of paper bags and boxes in the future. The use of paper bags and boxes instead of plastic ones will reduce the input of plastic into the environment and thus ultimately into the food chain when these plastic products are not disposed of properly.

The proportion of recovered paper used in the German paper industry is increasing continuously. It stood at 49% in 1990 but had already risen to 76% in 2018.¹ According to statistics from the German Pulp and Paper Association, the proportion of recovered paper used for packaging paper has been greater than 95% since 1995. The collection and sorting of recovered paper are

¹ Papier 2019- Ein Leistungsbericht (Paper 2019 - A Performance Report), German Pulp and Paper Association, Bonn, 2019

important prerequisites for making the recovered paper available to the paper industry. This process involves removing non-paper substances from the collected materials and then sorting the paper into defined grades of recovered paper (according to DIN EN 643). The Blue Angel promotes the use of 100% recovered paper in its criteria. At least 65% of the recovered paper must be sourced from the ordinary, medium and kraft paper grades (1, 2, 4) and the special grade 5. Ordinary paper grades are primarily recovered from household collections. By requiring the use of ordinary and kraft paper grades, the Blue Angel aims to ensure that almost all of the paper fibres recovered in the paper cycle are preserved and used for high quality applications such as for paper bags and boxes. A maximum of 35% of the recovered paper may be sourced from the better grades (group 3). This will make it possible to replace virgin fibre paper with recycled paper even for high-quality applications and thus contributes to the preservation of the forests. Using recovered paper from household and commercial collections supports the high-quality recycling of recovered paper.

The Blue Angel restricts the addition of critical production aids and paper refining agents in its criteria for the production of paper in order to, on the one hand, minimise the pollution of waste water and, on the other hand, reduce the pollutant load in the paper. For example, the use of optical brighteners, halogenated bleaching agents and not readily biodegradable complexing agents is prohibited except for in a few exceptional cases. In addition, it also sets requirements for waste water emissions, the generation of waste and energy consumption during the production of the paper.

In the production of the paper bags and boxes, it is also ensured that only those adhesives and printing inks that can be removed again during the subsequent recycling of the products are used so that the paper fibres can be fully fed back into the production cycle again as far as possible. In the case of bags for organic waste, the environmental label requires that the products do not have any harmful impact on the soil during composting.

1.3 Objectives of the Environmental Label

The requirements in these Basic Award Criteria are intended, in particular, to promote the use of recycled paper and prevent the use of substances that are not required for technical reasons during production. The use of recycled paper that has been awarded the Blue Angel makes an important contribution to the preservation of resources and the protection of species and the climate.

Therefore, following benefits for the environment and health are stated in the explanatory box for the environmental label depending on the use case:





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- mainly from recovered paper
- saves energy, water and wood
- particularly low level of harmful materials

1.4 Definitions

Finished products in the sense of these Basic Award Criteria are printed or unprinted paper bags and boxes made out of recycled paper certified with the Blue Angel that are primarily intended for use in supermarkets and the retail trade. This term is also used in these Basic Award Criteria as a synonym for paper bags and boxes.

Recovered paper according to DIN 6730 is the term used for paper, paperboard and cardboard, based on natural fibres, that is suitable for recycling and consists of:

- ♦ paper, paperboard and cardboard in any form,
- ♦ products primarily made of paper, paperboard and cardboard, which contain other components that cannot be separated using dry sorting, such as coatings and composite materials, spiral bindings etc.

Recovered paper is also used as the umbrella term for paper, cardboard and paperboard that is collected after use or processing. Refer to DIN EN 643 for specifications about the different grades of recovered paper.

Recycled paper according to DIN 6730 is an umbrella term for paper, paperboard and cardboard produced using fibres sourced 100% from recovered paper, whereby the fibres used may only be sourced from a production plant for recycled paper.

Paper bags and boxes is an umbrella term for all brown and white paper bags and boxes, with or without a handle, in a variety of different designs (incl. gift bags). This includes all types of bags and sacks without a viewing window, as well as bags for organic waste. This term also includes open corrugated cardboard boxes for transporting items purchased in supermarkets.

Bags for organic waste are compostable paper bags in the sense of Paragraph 3.9 that are made from 100% recovered paper and used in industrial composting plants and household composts.

Carrier bags/gift bags are paper bags made from 100% recovered paper or primarily from recovered paper that consumers use to transport goods.

Paper rubbish bags are paper bags made from 100% recovered paper with a larger surface area (> 2700 cm² according to DIN 55405) that are used to transport goods in households or commercial companies.

Bags for vegetables, baked goods and fruit are paper bags made from 100% recovered paper that are used to transport food items.

PFAS: Per- and polyfluoroalkyl substances

2 Scope

These Basic Award Criteria apply to paper bags and boxes (finished products) made out of recycled paper (certified according to DE-UZ 217a or DE-UZ 14a) that are primarily used in supermarkets and the retail trade for takeaway items or transporting purchased goods.

The scope of these Basic Award Criteria thus includes paper bags and boxes that are designed as end consumer products such as:

- ◆ Carrier bags for customers in the retail trade
- ◆ Open carrier boxes for customers in the retail trade
- ◆ Gift bags
- ◆ Bags for organic waste
- ◆ Paper rubbish bags
- ◆ Bags used to transport unpacked fresh food such as baked goods, vegetables, fruit, etc.

Excluded from the scope of these Basic Award criteria are bags filled with goods and packagings, as well as packagings and bags with a viewing window made out of plastic. The list of products stated above may be expanded following a decision by the German Environment Agency in agreement with RAL gGmbH.

Labelling of the finished products is described in Paragraph 3.13.

3 Requirements

3.1 Use of fibrous raw materials and grades of recovered paper

The paper used for the finished products must be certified in accordance with DE-UZ 217a or DE-UZ 14a². Accordingly, all of the paper fibres in the paper bags and boxes must have been sourced 100% from recovered paper.

In the case of [white] gift bags with handles, it is also permitted to use virgin fibre paper for the handles as long as these fibres account for $\leq 5\%$ by mass. In the case of small gift bags with a size of $\leq 190\text{mm} \times 80\text{mm} \times 210\text{mm}$, it is also permitted to use virgin fibre paper for the handles as long as these fibres accounts for $\leq 10\%$ by mass.

In the case of products that come into contact with food (food packaging, etc.), these finished products must comply with the requirements in Regulation (EC) No 1935/2004. In addition, the rules stated in Recommendation XXXVI from the BfR must also be observed depending on the type of application.

² In order to take into account the time delay in certifying the used waste papers with the Blue Angel, papers certified under DE-UZ 14a, 2018 edition may still be used until December 31, 2022.

Compliance verification

The applicant shall state the trade name of the recycled paper used, its manufacturer and the relevant contract number in Annex 1 to the contract pursuant to DE-UZ 217b. The applicant shall also submit a product sample as Annex 2.

3.2 Origin of the virgin fibres

It must be possible to verify the origin of the wood for the virgin fibres added to the product. The wood must be sourced from forests that are able to verify that they are certified according to a forestry management system established in Germany that is committed to sustainable management. The relevant forestry business must work in accordance with a high ecological and social standard and be certified accordingly. The certification systems from the Forest Stewardship Council® (FSC), the Programme for the Endorsement of Forest Certification Schemes (PEFC) and the Naturland standard will be accepted. Wood sourced from regional forestry businesses that remain close to nature also helps to avoid long transport routes, which have a negative ecological impact.

Compliance verification

The applicant shall state the manufacturer(s) of the virgin fibres and provide information on the origin of the wood added to the product in Annex 1 to the contract. The applicant shall submit corresponding certificates for the fibres. The correctness of the data provided in Annex 1 to the contract will be verified once a year in accordance with Annex 6 to the Basic Award Criteria by:

- *a certification body for ISO 14001 accredited by the German Accreditation Body (DAkKS) for the scope of paper manufacturers (NACE 17.12) or*
- *an environmental verifier approved for this scope (NACE 17.12) by the German Society for the Accreditation and Registration of Environmental Verifiers (DAU) in accordance with the Environmental Audit Act or*
- *an FSC or PEFC certifier accredited by the German Accreditation Body (DAkKS) or*
- *an expert recognised by the UBA in the areas of fibrous raw materials, grades of recovered paper and the recycling of recovered paper.*

3.3 Requirements for the virgin fibres

Virgin fibres may only be added to products certified according to DE-UZ 217b up to the maximum amount permitted if they are produced without the use of any chlorine, halogenated bleaching agents and optical brighteners.

Compliance verification

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

3.4 Requirements for dyes, toners, printing inks, surface finishing agents, coating materials and adhesives (general exclusion of substances)

The minimisation principle applies to dyes, toners, printing inks, surface finishing agents and adhesives. They should only be used in the quantities required to fulfil certain functions.

It is not permitted to use coatings (e.g. varnishes and films).

It is not permitted to add any dyes, toners, printing inks, surface finishing agents and adhesives which according to the criteria of Regulation (EC) No. 1272/2008³ are assigned the following H Phrases named in Table 1 or which meet the criteria for such classification⁴ or are classified as carcinogenic, mutagenic or reprotoxic in the currently valid version of TRGS 905⁵. The requirement relates to the labelling of the substance or mixture and not to the individual substances they contain.

It is prohibited to add any substances of very high concern (SVHC) as constituent components that have been added to the so-called "list of candidates" according to Article 59, Paragraph 1 of the REACH regulation (EC/1907/2006)⁶.

Table 1: H Phrases according to the CLP Regulation

CLP Regulation	Wording
Toxic substances	
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
Carcinogenic, mutagenic and reprotoxic substances	
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H350i ⁷	May cause cancer if inhaled.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H361	Suspected of damaging fertility or the unborn child.
Other potential hazards	
H362	May cause harm to breast fed children.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Toxic to aquatic organisms.

³ Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP Regulation).

⁴ The harmonized classifications and labellings of dangerous substances can be found in Part 3 of Annex VI to Regulation (EC) No 1272/2008 (CLP Regulation). Table 1 lists classifications and labellings using H Phrases; the CLP Regulation can be found, for example, at: <http://www.reach-info.de/ghs>.

⁵ https://www.baua.de/DE/Angebote/Rechtstexte-und-Technische-Regeln/Regelwerk/TRGS/pdf/TRGS-905.pdf?__blob=publicationFile&v=7

⁶ The version of the list of candidates at the time of application is valid. RAL gGmbH must be notified about any changes to the list of candidates that apply at the time of application. The applicant will be informed if substances have been added that were not previously on the list.

⁷ An exception is made for titanium dioxide because its classification is only based on the respirable dust

CLP Regulation	Wording
H411	Toxic to aquatic organisms with long-lasting effects.
H412	Harmful to aquatic organisms with long lasting effects.
H413	May cause long lasting harmful effects to aquatic organisms.

Compliance verification

The applicant shall declare compliance with the requirements in Annex 1 to the contract pursuant to DE-UZ 217b.

The applicant shall also verify compliance with the requirement by listing the dyes, toners, printing inks, surface finishing agents, coating materials and adhesives used and submitting declarations from the suppliers of the dyes, toners, printing inks, surface finishing agents, coating materials and adhesives as Annex 3 to the contract.

The relevant safety data sheets that verify that none of the above-mentioned labelling obligations exist for the added products shall be uploaded in digital form onto the Web Portal of RAL gGmbH.

*The safety data sheets may not be older than **2 years**.*

3.5 Azo dyes and pigments in colourants

For the production of the paper bags and boxes, no azo dyes or pigments may be added in colourants that can cleave into one of the amines stated in Regulation (EC) No. 1907/2006, Annex XVII, No. 43, Appendix 8 or 9, or in TRGS 614⁸ (Appendix B).

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 to the contract pursuant to DE-UZ 217b and submit a declaration from the colourant suppliers with Annex 3.

3.6 Heavy metals

The following heavy metals may not be added to dyes, toners and printing inks as a constituent component (dye, pigment, siccative): lead, cadmium, chromium VI, cobalt, mercury, nickel, and copper compounds with the exception of copper phthalocyanine.

Compliance verification

The applicant shall verify compliance with the requirement by submitting declarations from the suppliers of the dyes, toners and printing inks in accordance with Annex 4 to the contract pursuant to DE-UZ 217b.

⁸ <https://www.baua.de/DE/Angebote/Rechtstexte-und-Technische-Regeln/Regelwerk/TRGS/TRGS-614.html>

3.7 Hydrocarbons in printing inks in the offset printing process

In order to avoid unhealthy impurities during the reuse of paper fibres, the following requirements apply during the printing of the paper bags and boxes:

- In the case of aliphatic hydrocarbons, only those substances with a chain length of C10 to C20 may be used. In addition, the following high-molecular compounds without solvent properties may be used if they have a carbon number greater than C35 and the proportion of those with a carbon number of C20 to C35 does not exceed a maximum of 5%: microcrystalline waxes, Vaseline, polyolefin waxes, paraffin waxes or Fischer-Tropsch waxes.
- Only those printing inks in which less than 0.1% by mass of aromatic hydrocarbons sourced from mineral oil are used as constituent ingredients may be used. In heatset web offset printing, it is permissible for up to 1% by mass of aromatic hydrocarbons from mineral oil to be used as solvents because the oils are destroyed in the dryer (verification: MOAH measurement method).
- In addition, the printing ink may not contain more than 0.2 mg/kg of each of the following PAHs: benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[j]fluoranthene, benzo[a]pyrene, benzo[e]pyrene, chrysene, indeno[1,2,3-cd]pyrene, dibenzo[a,h]anthracene, benzo[g,h,i]perylene, naphthalene as single substances, and the sum of the phenantrenes, pyrenes, anthracenes and fluoranthenes must not exceed 1 mg/kg in each case. In addition, the sum of the stated PAHs must not exceed 1 mg/kg. This requirement also applies if the paper products are designed in colour.

Compliance verification

The applicant shall verify compliance with the requirement by submitting declarations from the suppliers of the printing inks in Annex 3 to the contract pursuant to DE-UZ 217b. In addition, the applicant shall ensure that the manufacturer of the printing inks submits information about the ingredients used in the formulations for the printing inks to RAL gGmbH as Annex 3.

3.8 Per- and polyfluoroalkyl substances in printing inks

- To avoid the release of persistent substances into the environment, the following requirements must be fulfilled:
- No per- and polyfluoroalkyl substances (PFAS) may be added to the printing inks.

Compliance verification

The applicant shall verify compliance with the requirements by submitting a declaration from the manufacturer of the printing inks in Annex 3.

3.9 Phthalates in adhesives

No adhesives containing phthalates may be used to manufacture the finished products according to Paragraph 2.

Compliance verification

The applicant shall submit declarations from the suppliers of the adhesives as Annex 5. The safety data sheets should not be older than 2 years.

3.10 Recyclability (except for bags for organic waste)

No verification of the product's recyclability is required for bags for organic waste because their intended use means that they are not fed back into the paper recycling loop. Bags for organic waste are thus exempt from this requirement.

All other paper bags and boxes must display a sufficient level of recyclability. A differentiation is made here between "white" (possibly printed in a single colour or multiple colours) and brown (possibly printed) finished products.

The recyclability of the products is assessed based on the following factors: repulpability, separability of adhesive applications and deinkability.

3.10.1 Repulpability of the paper bags and boxes and separability of adhesive applications

3.10.1.1 Repulpability

Both white and also brown paper bags and boxes must comply with the recyclability requirements according to PTS Method RH 021/97 (version from October 2012) for category II (packaging paper and packaging material).

As an exception to the recyclability requirements contained in PTS Method RH 021/97, the total dry residue (non-paper components of the product plus the sorting residue including non-repulpable paper components on a 0.7 mm perforated plate) must not exceed 15% by mass. The PTS Method rates the product design as being in need of improvement if it has a total dry residue of between 20% and 50%. This rating is not relevant for these Basic Award Criteria.

3.10.1.2 Separability of adhesive applications

The adhesive applications must be assessed using a sheet adhesion test as part of the recyclability test according to PTS Method RH 021/97 (version from October 2012) for category II. The finished product (paper bags and boxes) must pass the sheet adhesion test.

In contrast to printed matter, there is currently no inventory requirement and no defined requirements for the adhesive applications used on finished products made from packaging paper. However, the use of sortable adhesive applications is preferable.

3.10.2 Deinkability

White paper bags and boxes with an imprint should be deinkable. The deinkability of the paper bags and boxes must be tested in accordance with INGEDE Method 11.⁹ The deinkability of the product must be assessed in accordance with the guidelines issued by the EPRC (European Paper Recycling Council) using the deinkability scorecard (Assessment of Printed Product Recyclability – Deinkability Score User's Manual)¹⁰ for the product category "Low ink coverage products" based on the brightness of the unprinted base paper of $\leq 75\%$ or $> 75\%$.

⁹ <https://www.ingede.com/ingindx/methods/ingede-method-11-2018.pdf>

¹⁰ <http://www.paperrecovery.org/publications/>

The applicant shall declare compliance with the requirements in Paragraphs 3.10.1 and 3.10.2 in Annex 1 to the contract pursuant to DE-UZ 217b.

In addition, the applicant shall verify compliance with the requirements by submitting test reports on the recyclability and, where relevant, deinkability of the product from an independent testing institute, accredited according to ISO 17025 or a selected testing institution recognised by the UBA e.g. Chair of Paper Technology and Mechanical Process Engineering (PMV) at TU Darmstadt.

The testing must be carried out on the respective finished product and must be repeated if there is a significant change to the composition of the product (e.g. change to the type and quantity of the wet strength agent), the printing (change to the dye/printing ink, etc.) or the adhesive applications (change to the adhesive, the amount of adhesive). Compliance verification

3.11 Compostability (only for bags for organic waste)

Compostable bags for organic waste must comply with the requirements in Paragraphs 3.11.1 to 3.11.4.

3.11.1 Heavy metals, selenium and total fluorine

The bag for organic waste must comply with the limits in Table 2 (Table A.1 of DIN EN 13432 and a limit for cobalt according to NF T51-800).

Table 2: Limits for heavy metals, selenium and total fluorine (mg/kgTS)

Element	Limit value mg/kg TS	Element	Limit value mg/kg TS
Zn	150	Cr	50
Cu	50	Mo	1.0
Ni	25	Se	0.75
Cd	0.5	As	5.0
Pb	50	Co	38
Hg	0.5	Total F ¹¹	100

The limits for the metals refer to the total content, which must be determined using a suitable total digestion method (e.g. microwave digestion, aqua regia digestion) with ICP-MS, AAS or ICP-OES.

3.11.2 Ability to disintegrate

The bags for organic waste must be able to disintegrate into fractions during a practical composting test. The disintegration of the bag can be tested under either

- ♦ industrial composting conditions (pilot-scale test according to the minimum requirements of DIN EN 13432, DIN EN ISO 16929 or DIN EN 14045 [length of the disintegration test: 12 weeks]) – or a laboratory test according to DIN EN ISO 20200 [length of

¹¹ In the case of inorganic sources of fluorine, the difference between the total fluorine and the fluorine in the water extract can be used instead as the test parameter.

the thermophilic phase: max. 90 days, optional additional mesophilic phase: max. 90 days])

or

- ♦ household composting conditions (pilot-scale test according to DIN EN ISO 16929, modified according to the requirements of NF T51-800 or AS 5810 [length of the disintegration test: 26 weeks]) – or a laboratory test according to DIN EN ISO 20200 [modification: continuous mesophilic conditions, maximum incubation time 180 days])

The amount of material being tested must account for at least 1% of the organic waste used (fresh matter).

The residue in the sieve fraction > 2 mm must not exceed 10% (dry mass) at the end of the test.

3.11.3 Ecotoxicology

A test according to OECD 208, modified based on Section 8 and Annex E of DIN EN 13432, must be carried out on the compost substrate generated from the bag for organic waste¹⁾ used for the testing and on a reference substrate²⁾.

The average seed germination rate and shoot weight (original substance or dry mass) for the test compost must not be less than 90% of the values measured for the corresponding reference substrate.

- 1) The concentration of the test material (dry mass, ground to < 0.5mm) must account for at least 10% of the organic waste used (fresh matter).
- 2) A sample of organic waste without the test material that is incubated in parallel.

3.11.4 Biodegradability

Inorganic substances are not taken into account.

The biodegradability of the recycled paper itself is assumed. **All** additionally added organic components are assigned to the following categories (all of the stated application concentrations refer to the dry mass of the component/dry mass of the bag for organic waste):

Category 1: natural substances that are not chemically modified (e.g. cellulose, native starch)

The biodegradability of natural substances that are not chemically modified can be postulated based on DIN EN 13432 without further testing. The maximum amount of the components from category 1 that may be added to the product is 10%.

Category 2: modified natural substances (e.g. modified starch, CMC, etc.) or mixtures of modified natural substances

- The maximum amount of each component that may be added to the product is 1%. This value may only be exceeded after successful testing of the biodegradability of the individual components.
- The maximum sum of the amounts of all components from this category that may be added to the product is 5%.

Category 3: synthetic substances (this includes: pure substances, mixture of substances, homopolymers, heteropolymers, preparations, auxiliary materials at trace levels, substances and mixtures of substances with unknown compositions)

- The maximum sum of the amounts of all components from this category that may be added to the product is 3%.
- The maximum amount of each component that may be added to the product is 0.5%. This value may only be exceeded after successful testing of the biodegradability of the individual components.
- The maximum sum of the amounts of all components added to the product with an individual concentration < 0.5%, without separate verification of their biodegradability, is 1.5%. This value may only be exceeded after successful testing of the biodegradability of a mixture of these components. The mass ratios of the individual components in the mixture must be proportional to the relevant amounts added to the end product.

The following biodegradability tests are recognised:

- DIN EN ISO 14851, Part 1 or Part 2 (test at room temperature)
- DIN EN ISO 17556 (test at room temperature)
- OECD 301 B, D or F
- DIN EN ISO 14855 (test at room temperature or under thermophilic conditions)
- Alternatively, the biodegradability can be assessed using other methods than those stated above that are based on full (not potential) biodegradability without abiotic pretreatment and measurement of the CO₂ release or oxygen consumption (not e.g. DOC reduction) at a test temperature of not more than 58 °C.

Similar to DIN EN 13432, the biodegradability test for the substances/mixtures/components in categories II and III is considered to have been passed if the level of degradation of a component or mixture of components within a maximum test period of 6 (thermophilic conditions) or 12 months (test at room temperature) is at least 90% (absolute or relative to a suitable reference substance, e.g. microcrystalline cellulose).

If the relative limit is used, it must be ensured that the degradation of the reference substance has reached the plateau phase.

In the case of pure substances and homopolymers, the test can be stopped at the level of degradation (absolute) at which it is guaranteed that every type of C-bond in the compound can potentially be metabolised. This criterion assumes knowledge of the chemical structure.

Compliance verification

*The applicant shall verify the compostability of the product by submitting a corresponding test report that verifies compliance with the requirements 3.11.1, 3.11.2, 3.11.3 und 3.11.4 and was completed by an independent testing institution that works in accordance with ISO 17025. To maintain the certification, the test for 3.11.1 must be repeated every 2 years. A new assessment must be carried out if there is a change to the chemical composition. If a greater amount of one component is added or new components are added, the tests for 3.11.1 and 3.11.3 must be repeated as a minimum. If the geometry of the product changes but it has the **same chemical composition**, it may be necessary to repeat the test for 3.11.2 (e.g. if the weight/thickness increases).*

3.12 Fitness for use

The fitness for use of the recycled paper bags and boxes must be guaranteed. If relevant DIN standards include technical requirements for individual products, these must be observed in the versions valid at the time of application.

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 to the contract pursuant to DE-UZ 217b and state the corresponding DIN standard.

3.13 Labelling of the finished products

Due to the possible risk of confusion about the contents of the environmental label, all finished products according to Paragraph 2 that are printed with the Blue Angel logo must also include the explanatory box and the relevant registration number (DE-UZ 217b) or it is not permitted to print the logo on the product.

3.14 Consumer information

Examples of household waste that are suitable and unsuitable for composting should be listed on bags for organic waste, as well as a note for consumers to strictly observe the guidelines issued by the local waste management authorities.

3.15 Outlook

It is possible for consumers to easily replace single-use bags and boxes with multi-use bags and boxes in most cases. This is true irrespective of whether they are made of plastic or paper. Therefore, any revision of the environmental label should remove "carrier bags for customers in the retail trade" from the scope of the Basic Award Criteria.

Any future revision of the environmental label will require verifications that renewable raw materials, which are used e.g. for the production of mineral oil-free colourants, are obtained from responsible, GMO-free sources that are located in the local region as far as possible and have been tested by a suitable certification system. In addition, verification that white paper bags and boxes with an imprint are deinkable will be required in future. Furthermore, the proportion of microplastics in the recycled paper bags and boxes will be examined in future. There are

currently no validated measurement methods available for properly examining this parameter. The use of green electricity will also be examined in the future.

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.

The compliance verifications submitted by the applicant will be handled with complete confidentiality.

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. Significant changes shall be submitted to RAL gGmbH. In these cases, it is possible that the applicant will be requested to resubmit the compliance verifications.

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, 2024.

They shall be extended by periods of one year each, unless terminated in writing by March 31, 2024 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.

Appendix A Cited legislations and standards, literature

The currently valid versions of the relevant regulations and standards at the time of application apply, unless reference is made to a particular version of the regulation or standard in the criteria.

- [1]** Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast)
- [2]** Regulation (EC) No. 1935/2004 of the European Parliament and of the Council of 27 October 2004 on materials and articles intended to come into contact with food.
- [3]** 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)
- [4]** Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 concerning the classification, labelling and packaging of substances and mixtures
- [5]** 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
- [6]** Regulation (EG) No 440/2008 of 30 May 2008 laying down test methods pursuant to Regulation (EC) No 1907/2006 of the European Parliament and of on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- [7]** DIN EN 643:2014-11 Paper and board - European list of standard grades of paper and board for recycling
- [8]** DIN EN 13432:2000-12 Packaging - Requirements for packaging recoverable through composting and biodegradation
- [9]** DIN EN 14045:2003-06 Packaging - Evaluation of the disintegration of packaging materials in practical oriented tests under defined composting conditions
- [10]** DIN EN ISO/IEC 17025:2018-03 General requirements for the competence of testing and calibration laboratories
- [11]** DIN EN ISO 14851:2019-07 Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium - Method by measuring the oxygen demand in a closed respirometer
- [12]** DIN EN ISO 14855-1:2013-04 Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions - Method by analysis of evolved carbon dioxide - Part 1

- [13]** DIN EN ISO 16929:2020-02 Plastics - Determination of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test
- [14]** ISO 14001:2015-11 Environmental management systems - Requirements with guidance for use
- [15]** DIN 6730:2017-09 Paper, board and pulps - Vocabulary
- [16]** DIN 55405:2014-12 Packaging - Terminology - Terms and definitions
- [17]** Institut für Energie- und Umweltforschung Heidelberg GmbH (IFEU - Institute for Energy and Environmental Research Heidelberg) (2006): Ecological comparison of office papers in view of the fibrous raw material
- [18]** German Environment Agency (UBA) (2000): Ökobilanzen für graphische Papiere (Ecobalance of graphic paper)
- [19]** German Pulp and Paper Association, Papier 2019 – Ein Leistungsbericht (Paper 2019 - A Performance Report), Bonn, 2019
- [20]** TRGS 905 Directory of carcinogenic, mutagenic or teratogenic substances
- [21]** TRGS 614 Restrictions on use for azo dyes, which may release aromatic amines classified as carcinogens
- [22]** PTS METHOD PTS-RH 021/97, Version October 2012, "Prüfung von Roh-, Halb- und Hilfsstoffen der Papiererzeugung Kennzeichnung der Rezyklierbarkeit von Packmitteln aus Papier, Karton und Pappe sowie von grafischen Druckerzeugnissen" (Testing raw, semi-finished and auxiliary substances in paper production, labelling of the recyclability of packagings made from paper, paperboard and cardboard, as well as graphic printed matter)
- [23]** NF T51-800:2015-11-14: Plastics - Specifications for plastics suitable for home composting
- [24]** AS 5810:2010 Biodegradable plastics – Biodegradable plastics suitable for home composting
- [25]** OECD/OCDE208: 2006-07 OECD GUIDELINES FOR THE TESTING OF CHEMICALS
- [26]** OECD No. 208 Terrestrial Plant Test: Seedling Emergence and Seedling Growth Test
- [27]** OECD No. 301 Ready Biodegradability (301 B: CO₂ Evolution (Modified Test), 301 D: Closed Bottle, 301 F: Manometric Respirometry)
- [28]** INGEDE Method 11: Assessment of print product recyclability – Deinkability test (Version January 2018)

Appendix B Dyes and pigments that are not permitted

In accordance with Paragraph 3.5, the azo dyes and pigments listed below may not be added.

Azo dyes and pigments that may cleave to one of the following aromatic amines (according to Directive (EC) No. 1907/2006, Annex XVII, No. 43)

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)