

BLUE ANGEL

The German Ecolabel



**Wallpaper and Woodchip Wallpaper made
from Recycled Paper**

DE-UZ 35

Basic Award Criteria

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Version 1

The Environmental Label is supported by the following four institutions:



Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

The Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection 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, Nuclear Safety and Consumer Protection, 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 wallpaper helps to conserve resources, especially ecosystems such as forests, protect the climate and reduce waste, especially when using recovered paper from household and commercial collections. The environmental pollution associated with the cellulose and pulp production is avoided. 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.

In Germany, the estimated consumption of wallpaper base paper after deducting export surpluses was approximately 137,000 tonnes in 2020 (semi-finished goods). According to statistics published by the German paper industry, production volumes for wallpaper base paper have remained at a relatively constant level for a decade. Around 100,000 tonnes of wallpaper were placed on the market in 2020 in Germany according to the German Paper Industry Association (Papierindustrie e.V. – formerly “Verband Deutscher Papierfabriken” (VDP)).

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 79% in 2022 (Source: Die Papierindustrie e.V. 2023). The collection and sorting of recovered paper are 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: List of standard grades of paper and board for recycling).

The Blue Angel promotes the use of recovered paper in its criteria for wallpaper and woodchip wallpaper. Wallpaper, including all of its different layers, must be made 100% from recovered paper sourced from all grades of paper. Woodchip wallpaper must be made 100% from recovered paper, whereby at least 50% of the recovered paper must be sourced from ordinary and medium paper grades or special grades (groups 1, 2 or 5).

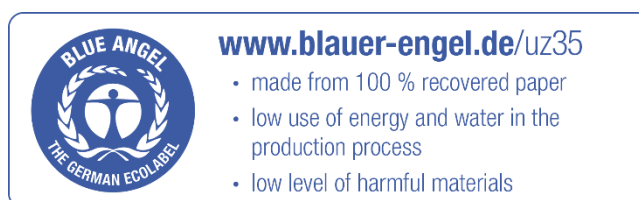
The Blue Angel restricts the addition of critical production aids and paper refining agents in its criteria for the production of paper in order to, on the one hand, minimise the pollution of waste water and, on the other hand, reduce the pollutant load in the paper. For example, the use of halogenated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

In order to guarantee the quality of the end product and ensure that it is low in pollutants, applicants must carry out tests on the end product to determine a number of different parameters. Last but not least, a chamber test to detect highly volatile substances (VOC emissions according to the AgBB procedure) must be carried out to verify compliance with health protection requirements for physical structures and, if relevant, avoid the risk of allergens and health risks.

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 makes an important contribution to the conservation of resources and the protection of species and the climate.

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



1.4 Definitions

Wall coverings: Manufactured rolls and sheets of material primarily stuck to walls and ceilings for decorative purposes that are breathable and low in emissions, can be painted over and can be used to cover contrasting colours and cracks on the subsurface.

Wallpaper: Basic wallpaper is available in various thicknesses or weights (90 - 180 g/m²). It is also available in multi-layer versions, with embossing, in various colours and in printed or coated versions.

Woodchip wallpaper: The surface of this wallpaper is adorned with different sized particles (wood fibres, woodchips or sawdust). This type of wallpaper can often be painted over and thus stands out due to its durability.

Wallpaper base paper: The paper used to manufacture wallpaper that is made available in various different variants, e.g. containing wood, fully glued, machine finished and colourless, tinted or with a light-resistant primer.

VOC: A volatile organic compound describes any chemical compound having a low vapour pressure at normal room temperatures (see Paragraph 3.7 for more details).

2 Scope

These Basic Award Criteria apply to

- a) wallpaper made of wallpaper base paper according to DIN 6730
- b) woodchip wallpaper according to DIN 6730

Plastic-coated wallpaper is excluded from the scope of these Basic Award Criteria.

3 Requirements

Wallpaper and woodchip wallpaper can be labelled with the environmental label illustrated on the first page of these Basic Award Criteria if they comply with the following requirements.

3.1 Use of fibrous raw materials and grades of recovered paper

The wallpaper/woodchip wallpaper must be produced using recovered paper.

Recovered paper is the umbrella term for paper and paperboard that is collected after use or processing. A classification of the different grades of recovered paper can be found in Appendix B.

3.1.1 Wallpaper

Wallpaper must be

- a) made out of paper certified with the DE-UZ 14a or DE-UZ 217a ecolabels
- or
- b) made 100% from recovered paper sourced from all grades of paper, across all of its different layers.

Compliance verification

The applicant shall state the papers used in the product and their manufacturers in Annex 2 and

- *shall also state the certificate numbers according to DE-UZ 14a or DE-UZ 217a*
- or
- *shall declare compliance with the requirement in Annex 1 to the contract. The correctness of the data provided in Annex 2 to the contract will be verified once a year with the paper manufacturer 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 accredited FSC certifier or an expert recognised by the UBA in the areas of fibrous raw materials, grades of recovered paper, the recycling of recovered paper and waste water treatment*

The applicant shall submit a product sample.

3.1.2 Woodchip wallpaper

The paper in the woodchip wallpaper must be made 100% from recovered paper. At least 50% of the recovered paper must be sourced from ordinary and medium paper grades or special grades (groups 1, 2 or 5).

Compliance verification

The applicant shall declare compliance with the requirement in Annex 1 to the contract and state the average percentage of the paper grades from groups 1, 2 and 5 used in the product in Annex 2 in accordance with Appendix B of ecolabel DE-UZ 35.

The correctness of the data provided in Annex 2 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 accredited FSC certifier or an expert recognised by the UBA in the areas of fibrous raw materials, grades of recovered paper, the recycling of recovered paper and waste water treatment.*

The applicant shall submit a product sample.

3.2 Requirements for the origin of the wood for the woodchips in woodchip wallpaper

It must be possible to verify the origin of the woodchips in woodchip wallpaper. The wood must be sourced from forests that are able to verify that they have been managed according to the guidelines for sustainable forestry. 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 name the manufacturer(s) of the woodchips and provide information on the origin of the wood added to the product in Annex 2 to the contract. The applicant shall submit corresponding certificates for the fibres.

The correctness of the data provided in Annex 2 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 General exclusion of substances with certain properties

No substances or mixtures that contain constituent components with the following properties (the hazard statements (H Phrases) that correspond to the hazard categories can be found in the table in Appendix E) may be added during production of the paper and the wallpaper/wood-chip wallpaper:

- a) substances of very high concern (SVHC) that are included in the so-called "list of candidates" according to Article 59, Paragraph 1 of the REACH regulation (EC/1907/2006)¹.
- b) substances that according to the CLP Regulation (EC/1272/2008)² have been classified in the following hazard categories or which meet the criteria for such classification:
 - ♦ 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
 - ♦ endocrine disruptors with a negative effect on human health in the categories ED HH 1 or ED HH 2³
 - ♦ endocrine disruptors with a negative effect on the environment in the categories ED ENV 1 or ED ENV 2⁴

¹ <https://echa.europa.eu/web/guest/candidate-list-table>. The version of the list of candidates at the time of application is valid. The label holder is obligated to take into account current developments on the list of candidates. If an ingredient is newly added to the list of candidates during the term of the Basic Award Criteria, the label holder must submit an informal notification within one month stating the name of the substance, its CAS or EC number and possible substitutes. The licence holder will then be given a deadline to substitute this ingredient.

² The current version of the CLP Regulation at the time of application is valid. The label holder is obligated to take into account current developments with the CLP Regulation. If an ingredient is classified with one of the named hazard categories during the term of the Basic Award Criteria, the licence holder must submit an informal notification within one month stating the name of the substance, its CAS or EC number, the new hazard category and possible substitutes. The licence holder will then be given a deadline to substitute this ingredient.

³ New hazard categories in the CLP Regulation, legally binding from 1 May 2025 at the latest for substances newly placed onto the market. A later deadline applies to existing substances on the market, except for categories ED HH 1 or ED HH 2: legally binding by 1 November 2026 at the latest.

⁴ See footnote 3

- ♦ persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) characteristics⁵
 - ♦ persistent, mobile and toxic (PMT) or very persistent, very mobile (vPvM) characteristics⁶
- c) substances classified in the following categories as carcinogenic, mutagenic or reprotoxic in the currently valid version of TRGS 905⁷:
- ♦ carcinogenic (K1A, K1B),
 - ♦ mutagenic (M1A M1B),
 - ♦ reprotoxic (RF1A, RF1B, RD1A, RD1B)

Compliance verification

The applicant shall declare compliance with the requirement during production of the wallpaper/woodchip wallpaper and production of the paper in Annex 1 to the contract. The applicant shall also verify compliance with the requirements by submitting a declaration from the suppliers of the raw materials and mixtures as Annex 3 to the contract.

The applicant shall name the production aids and auxiliaries added during production of the wallpaper/woodchip wallpaper and submit the relevant safety data sheets if requested to do so by RAL gGmbH.

To verify compliance with the requirement during production of the paper,

- *the applicant shall state the certificate numbers according to DE-UZ 14a or DE-UZ 217a for the paper added to the product*

or

- *If the applicant is the paper manufacturer and the paper is not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall declare compliance with the requirement in Annex 1 to the contract, state the production aids and auxiliaries added during production of the paper and submit the relevant safety data sheets if requested to do so by RAL gGmbH. The applicant shall also verify compliance with the requirements by submitting declarations from the suppliers of the raw materials and mixtures as Annex 3 to the contract.*

or

- *If the applicant is not the paper manufacturer and the paper is also not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall submit a declaration from the paper manufacturer as Annex 1 to the contract verifying their compliance with the requirement and stating the production aids and auxiliaries used.*

The applicant shall also verify compliance with the requirements by submitting a declaration from the suppliers of the raw materials and mixtures as Annex 3 to the contract.

⁵ See footnote 3

⁶ See footnote 3

⁷ http://www.baua.de/nr_16790/de/Themen-von-A-Z/Gefahrstoffe/TRGS/pdf/TRGS-614.pdf

3.4 Exclusion of certain substances and substance groups in the production of the paper

Due to their importance in paper production, the following substances have been listed separately because they either should not be used in the production of the paper or should not be added to the product.⁸

If paper certified in accordance with DE-UZ 14a or UZ 217a is used, the requirements in Paragraphs 3.4.1 to 3.4.3 will be considered to be fulfilled and no further verifications are required.

3.4.1 Bleaching and complexing agents

The pulp must be processed without the use of chlorine, halogenated bleaching agents and not readily biodegradable complexing agents such as e.g. ethylenediaminetetraacetic acid (EDTA) and diethylenetriaminepentaacetic acid (DTPA).

Compliance verification

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

- *shall also state the certificate numbers according to DE-UZ 14a or DE-UZ 217a for the papers added to the product*

or

- *If the applicant is the paper manufacturer and the paper is not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall state the bleaching chemicals and complexing agents used in Annex 2 to the contract (Name, CAS no.)*

or

- *If the applicant is not the paper manufacturer and the paper is also not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall submit a declaration from the paper manufacturer verifying their compliance with the requirement and state the bleaching chemicals and complexing agents used in Annex 2 to the contract (Name, CAS no.).*

3.4.2 Optical brighteners

No additional optical brighteners may be added. However, a certain amount of optical brighteners will already be contained in the product due to the use of recovered paper.

Compliance verification

The applicant shall declare compliance with the requirement to avoid the use of the stated auxiliary in Annex 1 to the contract.

⁸ Many of the excluded substances or substance groups are added as standard in the production of paper; however, the use of some of them has already been largely banned across the entire sector and/or they have been replaced and are thus only listed here for the sake of completeness.

3.4.3 Glyoxal in wet or dry strength agents

No wet or dry strength agents or other auxiliaries containing glyoxal may be used in the production of the paper.

Compliance verification

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

If wet or dry strength agents are used, the applicant shall verify compliance with the requirement by submitting declarations from the suppliers of the raw materials and chemical additives as Annex 3 to the contract.

And:

- *shall also state the certificate numbers according to DE-UZ 14a or DE-UZ 217a for the papers added to the product*

or

- *If the applicant is the paper manufacturer and the paper is not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall state the wet or dry strength agents used in Annex 2 to the contract*

or

- *If the applicant is not the paper manufacturer and the paper is also not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall submit a declaration from the paper manufacturer verifying their compliance with the requirement and state the wet or dry strength agents used in Annex 2.*

3.5 Exclusion of certain substances and substance groups in the production of the paper and the wallpaper/woodchip wallpaper

3.5.1 Azo dyes and pigments, as well as dyes containing heavy metals

No azo dyes or pigments that can cleave to any of the amines named in REACH Regulation (EC) No. 1907/ 2006, Annex XVII, No. 43, Annexes 8 and 9, or the latest version of TRGS 614⁹ may be added as colourants during production of the paper and the wallpaper/woodchip wallpaper.

No substances containing heavy metals (such as antimony, arsenic, lead, cadmium, chromium VI, mercury and selenium) may be added as pigments.

Compliance verification

The applicant shall declare compliance with the requirement in the production of the paper in Annex 1 to the contract and

- *shall also state the certificate numbers according to DE-UZ 14a or DE-UZ 217a for the papers added to the product*

or

⁹ <https://www.baua.de/DE/Angebote/Regelwerk/TRGS/TRGS-614.html>

- *If the applicant is the paper manufacturer and the paper is not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall state the dyes used and verify compliance with the requirement by submitting a declaration from the suppliers of the dyes as Annex 3*
- or
- *If the applicant is not the paper manufacturer and the paper is also not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall submit a declaration from the paper manufacturer stating the name of the dyes and a corresponding declaration from the suppliers of the dyes as Annex 3.*

In addition, the applicant shall declare compliance with the requirement in the production of the wallpaper/woodchip wallpaper in Annex 1 to the contract, state the dyes used in the product and verify compliance with the requirement by submitting a declaration from the suppliers of the dyes as Annex 3.

3.5.2 Perfluorinated or polyfluorinated substances and flame retardants

To avoid the release of persistent substances into the environment, no perfluorinated and polyfluoroalkyl substances (PFAS) may be added during production of the paper and the wallpaper/woodchip wallpaper.

Flame retardants may not be used in the production of the paper and the wallpaper/woodchip wallpaper.

Compliance verification

The applicant shall declare compliance with the requirement in the production of the paper in Annex 1 to the contract and, if the applicant is not the paper manufacturer, shall submit a declaration from the paper manufacturer about their compliance with the requirements as Annex 1.

In addition, the applicant shall declare compliance with the requirement during production of the wallpaper/woodchip wallpaper in Annex 1 to the contract.

3.6 Limits on anti-slime agents and preservatives during production of the paper and the wallpaper/woodchip wallpaper

No biocides may be added to the end product (wallpaper or woodchip wallpaper).

The following requirements must be complied with during production of the paper.

In the production of the paper, only those slimicides (substances in product type 12) and material preservatives for fibres (substances in product type 9) in the sense of the Biocidal Products Regulation that have been approved in accordance with the Biocidal Products Regulation (EU) No. 528/2012 (EU list of approved active substances) or are still being examined as a notified existing active substance for the relevant type of biocides as part of the EU work programme for the systematic examination of all existing active substances may be used. In addition, the biocidal products used in the product must not contain any substances that have been considered as candidates for substitution according to Article 10 of Regulation (EU) No. 528/2012.

Accordingly, it is only permitted to use those biocidal products classified in product types 9 and 12 that have been explicitly approved for the desired application. For a transitional period, biocidal products that contain notified existing active substances of product types 9 and 12 that are still being examined as part of the EU examination process can also be used without approval if they have been registered in accordance with the German ordinance on the notification of biocidal products pursuant to the German Chemicals Act (Biocide Notification Ordinance – ChemBiozidMeldeV). Until the approval requirements for the biocidal products containing notified existing active substances come into force, only those substances that are also listed in Recommendation XXXVI from the BfR are permitted.

It is also possible that production aids and paper refining agents used for the production of the wallpaper/woodchip wallpaper contain biocidal products in product type 6 (protection of finished products in containers against microbial deterioration to ensure their shelf life ("in-can preservatives")) that have been made available on the market. Residual content of these biocidal products will be accepted.

However, the finished product must only contain very small quantities of the permitted biocidal substances.

Accordingly, colourants, surface finishing agents, auxiliaries and coating materials containing 2-methyl-4-isothiazolin-3-one (MIT) or a mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-Methyl-4-isothiazolin-3-one (CIT/MIT 3:1) may only be added if it can be verified that the following quantities are not exceeded in total in the extracts from the finished wallpaper/woodchip wallpaper:

- ♦ Mixture of 5-chloro-2-methyl-4-isothiazolin-3-one, approx. 3 parts, and 2-Methyl-4-isothiazolin-3-one, approx. 1 part: **5 µg/dm²**
- ♦ 2-methyl-4-isothiazolin-3-one: **10 µg/dm²**

The extracted quantities of the above-named biocides in the finished products must be verified in accordance with the "Guidelines for verifying the mass transfer from consumer goods made out of paper and board" (Leitfaden zur Überprüfung der Stoffübergänge von Bedarfsgegenständen aus Papier, Karton und Pappe) from the BfR. The extracts must be produced in accordance with the "Collection of methods for examining paper and board for food contact" ("Methodensammlung zur Untersuchung von Papier, Karton und Pappe für den Lebensmittelkontakt) from the BfR and in accordance with DIN EN 645 (preparation of a cold water extract). The quantities must be determined using LC-MS (liquid chromatography and mass spectrometry).

Compliance verification

The applicant shall declare compliance with the requirement during production of the paper in Annex 1 to the contract and

- *shall also state the certificate numbers according to DE-UZ 14a or DE-UZ 217a for the papers added to the product*

or

- *If the applicant is the paper manufacturer and the paper is not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall state in Annex 2 which anti-slime agents and*

preservatives have been used with their IUPAC names and CAS numbers, as well as the quantities used per kilogram of dry pulp.

or

- If the applicant is not the paper manufacturer and the paper is also not certified according to DE-UZ 14a or DE-UZ 217a, the applicant shall submit a declaration from the paper manufacturer in Annex 2 stating which anti-slime agents and preservatives have been used with their IUPAC names and CAS numbers, as well as the quantities used per kilogram of dry pulp.

The applicant shall declare in Annex 1 to the contract whether he/she has added colourants, surface finishing agents, auxiliaries and coating materials, which due to the use of 2-methyl-4-isothiazolin-3-one or a mixture of 5-chloro-2-methyl-4-isothiazolin-3-one und 2-Methyl-4-isothiazolin-3-one (3:1) have been labelled with the H-Phrase H317, to the product during production of the wallpaper/woodchip wallpaper.

If the applicant has used these types of agents or substances, verification of compliance with the permissible quantities in the extract from the wallpaper/woodchip wallpaper using the above-named testing method must be provided. For this purpose, the applicant shall submit a test report from an independent testing institution accredited according to ISO 17025 or a testing institution recognised by the German Environment Agency.

3.7 Emissions of volatile organic compounds from the end product

Wallpaper/woodchip wallpaper must be tested for its emission potential for the emission of volatile organic compounds (VOC).

Based on the "Health-related Evaluation Procedure for Volatile Organic Compound Emissions (VOC) from Building Products"¹⁰ developed by the Committee for Health-Related Evaluation of Building Products, the wallpaper/woodchip wallpaper must not exceed the emission values stated in Table 3-2 in the test chamber:

Table 3-2: Maximum limits for VOC emission parameters

Parameter	Concentration after 28 days
TVOC (C6-C16)	≤ 100 µg/m ³
Total SVOC (>C16-C22)	≤ 50 µg/m ³
Total VOC without LCI	≤ 50 µg/m ³
Carcinogens	≤ 1.0 µg/m ³ per single value
R-value	≤ 1
Formaldehyde	≤ 10 µg/m ³
Acetaldehyde	≤ 120 µg/m ³

TVOC = Total sum of volatile organic compounds; sum of all individual substances found ≥ 5 µg/m³ in the retention range C6 – C16 (between and including n-hexane and n-hexadecane)

TSVOC = Sum of all individual substances ≥ 5 µg/m³ in the retention range > C16 – C22

Carcinogens = Classification according to Regulation (EC) No 1272/2008 Annex VI

R value = Sum of all quotients for the individual concentrations/associated LCI value (C_i / LCI_i)

LCI: Lowest Concentration of Interest

¹⁰ <https://www.umweltbundesamt.de/themen/gesundheit/kommissionen-arbeitsgruppen/ausschuss-zur-gesundheitlichen-bewertung-von>

The tests must be carried out in accordance with the latest AgBB procedure and the latest list of LCI values. The loading factor for walls of $1.0 \text{ m}^2/\text{m}^3$ should be used in the test chamber to calculate the emission values. Only the surface facing into the interior of the chamber should be taken into account for the loading factor. The rear side can be sealed with an inert material or a frame (or alternatively the test sample can be placed on the floor of the chamber). Emissions from any coverings around the edge of the test sample must be determined before the start of the test and documented internally at the laboratory. A sensory test can be optionally carried out. The test can be terminated at an early stage (at the earliest on the 7th day after preparing the test specimen) if the permissible emission values for the 28th day have been reached early and no significant increase in the concentration of any of the identified substances has been observed in comparison to the measurement on the 3rd day.

Compliance verification

The applicant shall submit a test report from a testing institution accredited according to ISO 17025 for this test method at the time of application.

The test shall be carried out in accordance with DIN EN 16516:2020-10 - Construction products: Assessment of release of dangerous substances - Determination of emissions into indoor air.

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

3.8 Requirements for production of the paper

3.8.1 Requirements for waste water at the site where the paper is produced

3.8.1.1 Direct discharge

In the production of paper for wallpaper/woodchip wallpaper made of recovered paper, the emission limits for the waste water load that are listed by the EU Commission in the "Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board PP BREF"¹¹ must be complied with by direct dischargers. These limits have been implemented in Germany in Appendix 28 of the German Waste Water Ordinance. If the production of the paper and the wallpaper/woodchip wallpaper take place at the same site, the requirements also apply to that site. The limits listed in Table 3-3 go above and beyond the statutory requirements in some cases so that the environmental label can only be used to certify wallpaper/woodchip wallpaper that is produced in a particularly environmentally friendly way.

Refer to the following table for the maximum limits for the average annual emission parameters (waste water) in the production of wallpaper and woodchip wallpaper.

Table 3-3: Maximum limits for the average annual emission parameters (waste water) in the production of paper

Parameter	Maximum limit for waste water emissions (average annual value as a load or concentration)	
	Paper factory with deinking	Paper factory without deinking
Volumetric flow rate of waste water	< 25 m3/Adt	< 20 m3/Adt
COD	< 3 kg/Adt	< 1.2 kg/Adt
BSB5	< 0.15 kg/Adt or <25 mg/l	
AOX	< 0.04 kg/Adt	
Total N (inorganic + organic N) (TN _b)	0.15 kg/Adt or 15 mg/l	
Total P	0.015 kg/Adt or 1.5 mg/l	

Adt = air dried ton

TN_b = total nitrogen bound. This parameter defines the total pollution of water by nitrogen compounds, which can appear in the form of e.g. ammonia, nitrites, nitrates or organic nitrogen compounds. A suitable method for determining this parameter is described in DIN EN 12260.

Compliance verification

The applicant shall state the certificate numbers according to DE-UZ 14a or DE-UZ 217a

or

If the paper manufacturer is a direct discharger, he/she shall declare compliance with the emission limits according to Table 3-3 in Annex 1 to the contract and state the measured emission values in Annex 4.

3.8.1.2 Indirect discharge

Indirect dischargers must declare compliance with the emission limits for the parameters stated in Table 3-3 after treatment.

Compliance verification

The applicant shall state the certificate numbers according to DE-UZ 14a or DE-UZ 217a

or

If the paper manufacturer is an indirect discharger, he/she shall declare compliance with the emission limits according to Table 3-3 in Annex 1 to the contract.

The volumetric flow rate of waste water and the AOX value at the mixing location must be stated in Annex 2.

The manufacturer shall submit a confirmation from the operator of the waste water treatment plant that provided the emission values for the other parameters in the downstream waste water treatment plant as Annex 5 to the contract (mixed values for all dischargers).

If the operator of the waste water treatment plant refuses to submit a declaration in accordance with Annex 5, the applicant can submit Annex 5 based on their own calculations.

If requested by RAL gGmbH, the calculations must be submitted.

3.8.2 Requirements for waste generated at the site where the paper is produced

To promote the avoidance of waste and in the spirit of a circular economy, the waste generated during production of the wallpaper/woodchip wallpaper made out of recovered paper must be minimised. The following waste materials are usually generated during production of wallpaper/woodchip wallpaper made out of recovered paper:

- Residues from the treatment of the recovered paper
- Fibrous sludge
- Deinking sludge
- Sludge from the treatment of the process water

The quantities of these waste fractions are dependent on both the quality of the paper used in the process and also the type of energy generation and other processes. The quantities of the residual waste materials can thus deviate and they should be recycled as far as possible.

In the production of wallpaper/woodchip wallpaper from recovered paper, the following waste material limits, including sludge from the treatment of the process water, given as an annual average figure as a dry mass, must not be exceeded:

Paper factory with deinking:	250 kg/t of product
Paper factory without deinking	150 kg/t of product

These limits were derived from the data collected for the BAT reference document for the paper and pulp industry (PP BREF¹¹, Section 6.2.1., Table 6.1).

Compliance verification

The applicant shall state the certificate numbers according to DE-UZ 217a

or

The applicant shall state the quantities of the above-named waste fractions per tonne of product (as a dry mass) that are generated during production of the paper for the wallpaper/woodchip wallpaper made from recycled paper in Annex 2 to the contract. The applicant shall also state and document the relevant waste code numbers and the recycling or disposal channels.

¹¹ BREF (Best Available Techniques Reference Document) full version and BAT conclusions in German and English at <https://www.umweltbundesamt.de/themen/wirtschaft-konsum/beste-verfuegbare-techniken/sevilla-prozess/bvt-merkmale-durchfuehrungsbeschluesse>

3.8.3 Requirements for energy consumption at the site where the paper is produced

The paper industry is one of the six most energy-intensive industries in Germany. The Blue Angel also sets incentives in its Basic Award Criteria for companies to further reduce the consumption of heat and electricity at the production sites.

For the production of paper for wallpaper/woodchip wallpaper made out of recovered paper, the following limits for the consumption of electricity and process heat must not be exceeded as an annual average:

Table 3-4: Maximum limits for the consumption of process heat and electricity in the production of paper (annual average value in kWh/t)

	Process heat in kWh/t	Electrical power in kWh/t
Paper factory with deinking	1,700	1,000
Paper factory without deinking	1,700	950

These limits were derived from the data collected for the BAT reference document for the paper and pulp industry (PP-BREF¹¹, Section 6.2.1, Table 6.7 (with deinking), Table 6.8 (without deinking)).

Compliance verification

The applicant shall state the certificate numbers according to DE-UZ 217a

or

The manufacturer of the wallpaper/woodchip wallpaper shall submit a declaration from the paper manufacturer verifying their compliance with the emission values in Annex 1 to the contract and state the measured energy consumption values and the measurement period used in Annex 2.

3.8.4 Requirements for emissions to air at the site where the paper is produced and the site where the DIP¹² is produced

Requirements are placed on the emissions to air in the production of paper for wallpaper/woodchip wallpaper made out of recovered paper. The emissions to air include both the emissions from the plants generating the steam and electricity needed for the production of the paper and also the emissions from the plants used to prepare the recovered paper as well as the paper machine. Emissions during production of the fibrous raw materials (DIP) also have to be taken into account.

The paper manufacturer must determine the levels of the following pollutants in the emissions to air at the production plant and should¹³ comply with the limits stated in Table 3-5 (measurement specifications, see Appendix D "Measurement of emissions to air"):

¹² Deinked pulp

¹³ This is considered a "should" requirement and not a "must" requirement, i.e. the measurements must be carried out but it is not necessary to comply with the limits.

Table 3-5: Maximum limits for the average annual emission parameters (emissions to air) in the production of paper (average annual value (AAV) in kg/air dry tonne)

	Sulphur (S) as AAV	NOx as AAV
Preparation of the recovered paper	0.2 kg/t	0.25 kg/t
Production of recycled paper	0.3 kg/t	0.5 kg/t

Emissions during production of the fibrous raw materials (DIP) also have to be taken into account. The levels of the following pollutants in the emissions to air at the DIP production site must be determined¹⁴ and the manufacturer should comply with the limits in Table 3-6 (measurement specifications, see Appendix D "Measurement of emissions to air"):

Table 3-6: Maximum limits for the average annual emission parameters (emissions to air) in the production of the DIP (average annual value (AAV) in kg/air dry tonne)

	Sulphur (S) as AAV	NOx as AAV
Preparation of the recovered paper	0.2 kg/t	0.25 kg/t
Production of recycled paper	0.3 kg/t	0.5 kg/t

Compliance verification

The applicant shall declare compliance with the requirements according to Table 3-5 and Table 3-6 in Annex 1 to the contract and submit the test report.

If the applicant is not the paper manufacturer, the applicant shall submit a declaration from the paper manufacturer verifying compliance with the requirement according to Tables 3-5 and 3-6.

The test report must comply with the requirements in the measurement specifications in Appendix D "Measurement of emissions to air" and it must be submitted at least every three years or in accordance with the measurement cycle stipulated by the relevant authorities.

The submitted test report must be produced by a testing laboratory accredited according to DIN EN ISO/IEC 17025 (general requirements for the competence of testing and calibration laboratories) or with official accreditation as a GLP laboratory¹⁵.

In-house laboratories are recognised as being of an equivalent standard when they have been accredited by an independent body as an SMT laboratory (supervised manufacturer testing laboratory).

3.9 Outlook

The following aspects will be investigated in a future revision of the environmental label:

- Requirements for waste water at the site where the wallpaper/woodchip wallpaper is produced
- Requirements for waste generated at the site where the wallpaper/woodchip wallpaper is produced

¹⁴ This is considered a "should" requirement and not a "must" requirement, i.e. the measurements must be carried out but it is not necessary to comply with the limits.

¹⁵ <http://www.oecd.org/chemicalsafety/testing/oecdseriesonprinciplesofgoodlaboratorypracticeglpandcompliancemonitoring.htm>

4 Applicants and Parties Involved

Manufacturers 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, 2029.

They shall be extended by periods of one year each, unless terminated in writing by March 31, 2029 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 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.

Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board, 2015, according to Directive 2010/75/EU on industrial emissions

BfR Recommendations on Food Contact Materials No. 360, XXXVI. Paper and board for food contact, version 01/04/2021

Blechs Schmidt Jürgen Taschenbuch der Papiertechnik (Paper Technology Paperback), Carl Hanser Verlag GmbH & Co. KG 2010

DIN EN 233:2017-02 - Wallcoverings in roll form - Specification for finished wallpapers, wall vinyls and plastics wallcoverings; German version EN 233:2016

DIN EN 234:2020-03 - Wallcoverings in roll form - Specification for wallcoverings for subsequent decoration; German version EN 234:2019

DIN EN 235:2020-08 - Wallcoverings - Vocabulary and symbols; German version EN 235:2020

DIN EN 259-1:2001-12 - Wall coverings in roll form - Heavy duty wallcoverings - Part 1: Specifications; German version EN 259-1:2001

DIN EN 259-2:2001-12 - Wall coverings in roll form - Heavy duty wallcoverings - Part 2: Determination of impact resistance; German version EN 259-2:2001

DIN EN 643:2014-11 Paper and board - European list of standard grades of paper and board for recycling

DIN EN 645:1994-01 Paper and board intended to come into contact with foodstuffs; preparation of a cold water extract

DIN EN 647:1994-01 Paper and board intended to come into contact with foodstuffs; preparation of a hot water extract

DIN 6730:2017-09 Paper, board and pulps - Vocabulary

DIN 6744:1992-02 - Wallpaper base; determination of strippability and peelability of wallpaper base and of wallpaper (wallcoverings)

DIN EN 12149 1998-01 Test A - Wallcoverings in roll form - Determination of migration of heavy metals and certain other elements (antimony, arsenic, barium, cadmium, chromium, mercury, lead and selenium), German version EN 12149:1997

DIN EN 12149: 1998 Test B - Wallcoverings in roll form - Determination of vinyl chloride monomers, German version EN 12149:1997

DIN EN 12149 1998-01 Test C - Wallcoverings in roll form - Determination of volatile formaldehyde using the modified WKI method, German version EN 12149:1997

DIN EN ISO 12572:2017-05 - Hygrothermal performance of building materials and products - Determination of water vapour transmission properties - Cup method (ISO 12572:2016); German version EN ISO 12572:2016

DIN EN 12956/A1:2020-06 - Wallcoverings in roll form - Determination of dimensions, straightness, spongeability and washability; German version EN 12956:1999/A1:2001

DIN EN 13823:2020-09 - Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item, German version EN 13823:2020

DIN EN 15102:2019-08 - Decorative wallcoverings - Roll form; German version EN 15102:2019

DIN EN 16516:2020-10 - Construction products: Assessment of release of dangerous substances - Determination of emissions into indoor air; German version EN 16516:2017+A1:2020

Model Administrative Rules – Technical Building Regulations (MVV TB), DIBt Edition 2020/1; Official Notification 2021/1 (Edition: 19 January 2021)

RAL-GZ 479:2014-06 Wallpapers – quality assurance scheme

Directive (EU) 2018/852 of the European Parliament and of the Council of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste

Directive 2019/904/EU of the European Parliament and of the Council of 5 June 2019 on the reduction of the impact of certain plastic products on the environment

TRGS 905 Directory of carcinogenic, mutagenic or teratogenic substances

TRGS 614 Restrictions on use for azo dyes, which may release aromatic amines classified as carcinogens

German Pulp and Paper Association (Verband Deutscher Papierfabriken e.V., Bonn), Ein Leistungsbericht 2020 (A Performance Report 2020)

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)

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

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

Ordinance on Requirements for the Discharge of Waste Water into Waters (Waste Water Ordinance - AbwV), Appendix 28 Production of paper and cardboard 2018

German ordinance on the notification of biocidal products pursuant to the German Chemicals Act (Biocide Notification Ordinance - ChemBiozidMeldeV) of 14 June 2011 (BGBl. I P. 1085) Date of issue: 14/06/2011

Appendix B Overview of the grades of recovered paper

The following summary from DIN 643 "Paper and board – European list of standard grades of paper and board for recycling" aims to provide a general overview of the different grades of recovered paper. Please refer to this standard for more information on the precise components and any undesirable materials.

Group 1 (ordinary grades) includes ordinary mixed recovered paper with certain proportions of cardboard and corrugated board, telephone books, newspapers and magazines and graphic paper for deinking.

Group 2 (medium grades) includes newspapers, books, white shavings and cardboard with a small proportion of wood and small proportions of coloured paper and plastic coatings, copy paper and tissue edges.

Group 3 (high grades) includes mixed and printer shavings containing different proportions of wood-free paper, white letters, board, paper and shavings, as well as unprinted tissue.

Group 4 (kraft grades) includes paperboard, corrugated cardboard, kraft paper, kraft sacks and carrier kraft.

Group 5 (special grades) includes all grades from groups 1 to 5, mixed packaging, liquid packaging board, labels, various wet strength paper, envelopes, blister packs, kraft sacks, plastic layer paper, paper cups and tableware.

Appendix C Measurement of emissions to waste water in the production of the paper or fluff pulp

Measurement of emissions to waste water must be carried out on unfiltered and unsettled samples, either after preparation at the production plant or after preparation at an urban waste water treatment plant.

The measurements must be carried out over a production period of 12 months. The frequency of the measurements must be at least monthly (once a month). In the case of new or renovated production plants, the measurements must be based on at least 45 consecutive days of continuous plant operation. The measurements must be representative for the relevant periods.

Accepted test methods include:

- ♦ CSM: ISO 6060, ISO 15705, NS 4748, SFS 3020 SFS 5504, SS 028142, DIN 38409 part 41, NFT 90101, ASTM D 1252 83, EPA SM 5220D or HACH 8000
- ♦ Total N: EN ISO 11732, EN 10304-2, EN ISO 13395, SFS 5505, SS 0280101
- ♦ Total P: ISO 6878, SS 028102, SFS 3026, NS 4725, EN 1189:1993, SM4500, APAT IRSA CNR 4110 or Dr. Lange LCK 349
- ♦ An equivalent test method whose scope and requirement standards is equivalent to one of the named national and international standards. The equivalence of the certification system must be confirmed by an independent environmental verifier.
- ♦ Alternatively, individual verifications in accordance with the criteria and verification requirements of one of the named test methods may be presented if an equivalent level of protection can be achieved. The equivalence of the individual verifications must be confirmed by an independent environmental verifier.

Appendix D Measurement of emissions to air in the production of the paper

The measurements of the emissions to air must be carried out over a production period of 12 months. Unless the regulatory requirements at the production site prohibit such measurements, measurements of the emissions to air must be completed at least every 3 years in addition to any measurements stipulated in the regulatory requirements.

The sulphur emissions associated with the generation of heating energy from oil, coal and other external fuels with known S-contents can be measured or calculated and must be taken into account.

In the case of new or renovated production plants, the measurements must be based on at least 45 consecutive days of continuous plant operation.

The measurements must be representative for the relevant periods.

Accepted test methods include:

- Gaseous sulphur compounds: NS 4859, SFS 5265, SS 028421, EPA 8, EPA 16A
- NO_x: ISO 11564, ISO 10849, EN 14792, SS 028425, EPA 7E
- Dust: EN 13284-1, SFS 3866
- An equivalent test method whose scope and requirement standards is equivalent to one of the named national and international standards. The equivalence of the test methods must be confirmed by an independent environmental verifier.

Appendix E Hazard categories and hazard information

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

CLP Regulation (EC) No. 1272/2008		
Hazard category	Hazard statements	
	H Phrases	Wording
Carcinogenic substances		
Carc. 1A Carc. 1B	H350	May cause cancer.
Carc. 1A Carc. 1B	H350i	May cause cancer if inhaled.
Germ cell mutagenic substances		
Muta. 1A Muta. 1B	H340	May cause genetic defects.
Reprotoxic substances		
Repr. 1A Repr. 1B	H360D	May damage the unborn child.
Repr. 1A Repr. 1B	H360F	May damage fertility.
Repr. 1A Repr. 1B	H360FD	May damage fertility. May damage the unborn child.
Repr. 1A Repr. 1B	H360Df	May damage the unborn child. Suspected of damaging fertility.
Repr. 1A Repr. 1B	H360Fd	May damage fertility. Suspected of damaging the unborn child.
Endocrine disruptors		
ED HH 1	EUH380	May cause endocrine disruption in humans
ED HH 2	EUH381	Suspected of causing endocrine disruption in humans
ED ENV 1	EUH430	May cause endocrine disruption in the environment
ED ENV 2	EUH431	Suspected of causing endocrine disruption in the environment
(Very) persistent), (very) bioaccumulative and toxic substances		
PBT	EUH440	Accumulates in the environment and living organisms including in humans
vPvB	EUH441	Strongly accumulates in the environment and living organisms including in humans
(Very) persistent), (very) mobile and toxic substances		
PMT	EUH450	Can cause long-lasting and diffuse contamination of water resources
vPvM	EUH451	Can cause very long-lasting and diffuse contamination of water resources