

BLUE ANGEL

The German Ecolabel



**Concrete products with recycled aggregates
for road construction,
gardening and landscaping**

DE-UZ 216

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

Concrete products can cause environmental pollution across their whole life cycle. Therefore, the requirements for the ecolabel focus not only on the source materials used during the manufacturing and surface treatment processes but also on the period of use of the products and their subsequent disposal. Concrete products containing recycled aggregates help to conserve, in particular, the natural resources gravel and sand. Therefore, the criteria for this ecolabel promote the use of resource-conserving recycled materials. The criteria also promote climate friendly solutions for the manufacture and transport of the concrete products.

Due to the fact that concrete products such as paving blocks are sometimes installed over large areas and thus come into contact with soil or rainwater, the requirements placed on the permeability of the paved surfaces and the release of the lowest amount of pollutants possible help to reduce the impact on the environment. To evaluate the release of pollutants from the concrete products, these Basic Award Criteria are based on the "Horizontal dynamic surface leaching test" according to DIN/EN 16637-2. When used in combination with permeable grouting materials, concrete products certified with the Blue Angel ecolabel are harmless to the soil and groundwater and are thus especially suited and recommended for paved and slabbed surfaces.

1.3 Objectives of the Environmental Label

This environmental label may be awarded to products that – above and beyond the legal regulations:

- are manufactured using materials that place less burden on the environment than usual,
- are safe for the environment from an ecotoxicological perspective and
- do not contain any harmful substances that have a detrimental impact during the recycling process.

In addition, the environmental label promotes

- the use of recycled material,
- the natural water cycle by allowing rainwater to reach the soil using permeable paving blocks and flags,
- the easier reuse and recycling of the certified products at the end of their usage phase

- and the avoidance and reduction of greenhouse gas emissions, and, as the final step of this three-pronged approach, the offsetting of non-avoidable and non-reducible emissions that are emitted during the manufacturing and transport of the products and their source materials.

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



or



2 Scope

These Basic Award Criteria are valid for the following products¹ made of concrete:

- Concrete paving blocks according to DIN EN 1338²
- Concrete paving flags according to DIN EN 1339³
- Concrete kerb units according to DIN EN 1340⁴
- Precast concrete products according to DIN EN 13198⁵
- Terrazzo tiles according to DIN EN 13748-2⁶
- Grass pavers according to the guidelines on non-standard concrete products⁷
- Paving blocks of concrete with open structure according to DIN 18507-1⁸

¹ The Environmental Label Jury can approve other concrete products on the recommendation of the German Environment Agency (Umweltbundesamt)

² DIN EN 1338 Concrete paving blocks - Requirements and test methods

³ DIN EN 1339 Concrete paving flags - Requirements and test methods

⁴ DIN EN 1340 Concrete kerb units; Requirements and test methods

⁵ DIN EN 13198 Precast concrete products - Street furniture and garden products

⁶ DIN EN 13748-2 Terrazzo tiles for external use

⁷ Bund Güteschutz – Richtlinie Nicht genormte Betonprodukte – Anforderungen und Prüfungen – von Bauprodukten in Beton- und Fertigteilwerken (Quality Control Association for Concrete – Guidelines on Non-Standard Concrete Products - Requirements and Test Methods – for construction products in concrete and precast plants) (BGB-RiNGB)

⁸ DIN 18507-1 Paving blocks of concrete with open structure - Part 1: Terminology, requirements and testing

3 Requirements

3.1 Requirements for the source materials

3.1.1 General substance requirements

Concrete products available on the market can contain chemicals that are classified as hazardous. Observance of the legal regulations according to European and German chemical law is a prerequisite for products certified with the Blue Angel; this includes, in particular, the REACH Regulation⁹ Annexes XIV and XVII, the POP Regulation¹⁰ Annex I and the CLP Regulation¹¹. If other legal regulations also apply to specific products, these also need to be observed.

Above and beyond the legal requirements, products certified with the Blue Angel must also comply with other requirements:

Concrete products certified with the Blue Angel may not contain any substances of very high concern (SVHC), which are included in the list (so-called "list of candidates"¹²) drawn up in accordance with Article 59, Paragraph 1 of the REACH Regulation (European Chemicals Regulation), exceeding 0.1% by mass.

Furthermore, the concrete products may not contain any substances with the following properties as a **constituent component**¹³:

1. Substances which are identified as particularly alarming under the REACH Regulation (European Chemicals Regulation) and which have been incorporated into the list drawn up in accordance with Article 59, Paragraph 1 of the REACH Regulation (so-called "list of candidates"¹¹).
2. Substances that according to the CLP Regulation have been classified in the following hazard categories or which meet the criteria for such classification¹⁴:
 - carcinogenic in categories Carc. 1A or Carc. 1B;
 - germ cell mutagenic in categories Muta. 1A or Muta. 1B;

⁹ Regulation (EC) No. 1906/2006 concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals

¹⁰ Regulation (EC) 2019/1021 on persistent organic pollutants

¹¹ Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures

¹² The version of the list of candidates as amended at the time of application is valid. It can be found here: <https://www.echa.europa.eu/candidate-list-table>. 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.

¹³ Constituent components are substances added to the product as such or as part of a mixture in order to achieve or influence certain product properties and those required as chemical cleavage products for achieving the product properties. This does not apply to residual monomers that have been reduced to a minimum.

¹⁴ The harmonized classifications and labellings of hazardous substances can be found in Annex VI, Part 3 of the CLP Regulation. Furthermore, a comprehensive classification and labelling inventory, which also includes all of the self-classifications of hazardous substances made by manufacturers, has been made available to the public on the website of the European Chemicals Agency (ECHA): <https://echa.europa.eu/de/regulations/clp/cl-inventory>. The version of the CLP Regulation at the time of application is valid. The licence holder is obligated to take into account current developments in 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 stating the name of the substance and its CAS or EC number and the new hazard category within one month. The licence holder will then be given a deadline to substitute this ingredient.

- reprotoxic (teratogenic) in categories Repr. 1A or Repr. 1B;
- acute toxicity (poisonous) in categories Acute Tox. 1 or Acute Tox. 2;
- endocrine disruptors with a negative effect on human health in the category ED HH 1;
- endocrine disruptors with a negative effect on the environment in the category ED ENV 1;
- persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB);
- persistent, mobile and toxic (PMT) or very persistent, very mobile (vPvM);
- hazardous to water in categories Aquatic Chronic 1, Aquatic Chronic 2 or Aquatic Chronic 3 or
- hazardous to the ozone layer in category Ozone 1.

3. Substances that are classified in TRGS 905¹⁵ as:

- Carcinogenic (K1A, K1B)
- Germ cell mutagenic (M1A, M1B)
- Reprotoxic (RF1A, RF1B)
- Teratogenic (RD1A, RD1B)

Substances with other hazardous properties are not excluded here but are instead restricted by the tests in Paragraphs 3.1.2 and 3.2.2.

Compliance verification

The applicant shall declare compliance with the requirements [Annex] and submit corresponding declarations from the manufacturer/suppliers as well as the technical data sheets and safety data sheets for all of the concrete additives used in the recipe. If the term of validity of the Basic Award Criteria is extended, new declarations from the manufacturer or suppliers shall be submitted. If information on the recipe is incomplete, the applicant shall submit a test report according to DIN 51012 Supplement 1 "Screening of substances of very high concern (SVHC)"¹⁶ to verify that the SVHC content in the concrete products is $\leq 0.1\%$ by mass.

3.1.2 Requirements for the aggregates

At least 40% by mass of the coarse and fine aggregates used to manufacture the concrete products must be sourced from recycled, residual materials from the manufacturing plant or from other construction or demolition waste.

In addition, the recycled aggregates must comply with the "Requirements for physical structures regarding effects on soil and water (ABuG)" in Annex 10, Section 6.1.1 of the Specimen Administrative Provision – Technical Building Regulations (MVV TB)^{17, 18}.

¹⁵ Technical Rules for Hazardous Substances. TRGS 905 Directory of carcinogenic, mutagenic or teratogenic substances. <https://www.baua.de/DE/Angebote/Rechtstexte-und-Technische-Regeln/Regelwerk/TRGS/TRGS-905.html>

¹⁶ <https://dx.doi.org/10.31030/3549611>

¹⁷ https://www.dibt.de/fileadmin/dibt-website/Dokumente/Referat/P5/Technische_Bestimmung/MVVTB_2023-1.pdf. The latest version published on the DIBt website at the time the application is submitted or at the time the annual analysis is submitted is valid.

¹⁸ If faulty batches of prefabricated concrete parts are directly used as recycled aggregates in the manufacturing plant, no verification of the substances contained in them or their release of hazardous substances is required.

Compliance verification

The applicant shall verify the origin and composition of the recycled aggregates added to the product by submitting a material flow analysis (with calculated and plausibly justified verification of the proportion of aggregates that are not sourced from residual materials from the manufacturing plant). The records and results shall be confirmed in the form of a declaration (Annex).

The annual analysis (Annex) shall be submitted at the time of application and then annually at the latest one year after the issuing date of the previous, confirmed material flow analysis. The annual material flow analyses must cover consecutive time periods without any gaps.

The applicant shall verify compliance with the requirements according to Annex 10 of the MVV TB by submitting a declaration of performance based on a European technical assessment or a proof of performance based on DIN 4226-101¹⁹ and DIN 4226-102²⁰ in a technical document issued by a notified body according to Article 43 of the European Construction Products Regulation (CPR) (Annex). Compliance with the corresponding requirements in the production inspections carried out at the manufacturing plant shall be confirmed once a year in the form of a manufacturer's declaration (Annex).

3.1.3 Requirements for cement

A CEM II grade of cement or a cement grade with a low clinker content (according to DIN EN 197-1) must be used in the core concrete. The proportion of cement in the recipe for the concrete product must not exceed 14% by mass.

Compliance verification

The applicant shall indicate the grade of cement and declare compliance with the requirement (Annex).

3.1.4 Halogens

No halogenated organic compounds may be used in the manufacture of the concrete products (e.g. as waterproofing agents and impregnations).

Compliance verification

The applicant shall declare compliance with the requirement (Annex). If it is not possible to declare compliance with the requirements based on the knowledge of the recipe, the content of adsorbable organically bound fluorine, chlorine and bromine in the eluate produced under Paragraph 3.2.2 must be determined by an accredited testing laboratory in accordance with DIN

¹⁹ DIN 4226-101 Recycled aggregates for concrete in accordance with DIN EN 12620 - Part 101: Type testing and factory production control

²⁰ DIN 4226-102 Recycled aggregates for concrete in accordance with DIN EN 12620 - Part 102: Type testing and factory production control

38409-59²¹ and must not exceed the concentration limits defined for the intended application in DIN 38409-59 (fluorine $\geq 2 \mu\text{g/l F}$, chlorine $\geq 10 \mu\text{g/l Cl}$, bromine $\geq 1 \mu\text{g/l Br}$).²²

The detection limits used in the laboratory may not be higher than the concentration limits for the intended application. The applicant shall submit the test reports.

3.1.5 Biocides

The use of biocides according to Regulation (EU) No 528/2012 is not permitted. An exception is made for biocides in primary/intermediate products used for the final product that are exclusively designed for the pot preservation of aqueous coatings (Product-type PT 6) and these biocides are permitted in Blue Angel products (see positive list in Supplement B).

Compliance verification

The applicant shall declare compliance with the requirement [Annex].

3.2 Requirements for the product

3.2.1 Structural suitability

The product must comply with one of the standards covered by the scope of the Basic Award Criteria.

Compliance verification

The applicant shall submit the CE marking according to DIN EN 1338, DIN EN 1339, DIN EN 1340 or DIN EN 13748-2. In the case of products according to DIN EN 1338 and DIN EN 1339, the applicant must declare the properties relevant to its use in "outdoor flooring" (strength, slip/skid resistance and durability). In the case of precast concrete products according to DIN EN 13198, grass pavers according to BGB-RiNGB and/or paving blocks of concrete with open structure according to DIN 18507-1, the applicant shall submit a manufacturer's declaration or verification from a third-party tester that refers to the respective standard.

3.2.2 Dynamic surface leaching test

The concrete products (two concrete test samples) must be eluted according to DIN/EN 16637-2²³. The test samples must be produced based on the German guidelines "DAfStb-Richtlinie - Bestimmung der Freisetzung umweltrelevanter Stoffe aus zementgebundenen Baustoffen in der dynamischen Oberflächenauslaugprüfung"²⁴ (DAfStb guidelines - Determining the release of environmentally relevant substance from cement-bound building materials in the dynamic surface

²¹ DIN 38409-59:2022-10. German standard methods for the examination of water, waste water and sludge - Parameters characterizing effects and substances (group H) - Part 59: Determination of adsorbable organically bound fluorine, chlorine, bromine and iodine (AOF, AOCl, AOBr, AOI) using combustion and subsequent ion chromatographic measurement (H 59)

²² If there are not yet any laboratories carrying out the eluate test according to DIN 38409-59, the content of halogenated fluorine, chlorine and bromine must be determined instead in the dry mass by an accredited testing laboratory using a suitable method and the proportion of tolerable impurities may not exceed 4 g/kg.

²³ DIN EN 16637-2 Construction products - Assessment of release of dangerous substances - Part 2: Horizontal dynamic surface leaching test

²⁴ <https://www.beuth.de/de/technische-regel/dafstb-freisetzung-stoffe/326579963>

leaching test), which provides more detailed specifications for cement-bound building materials based on CEN/TS 16637-2.

The ecotoxicity of the eluate must be tested according to CEN/TS 17459²⁵ (mixture of the first two eluates produced according to CEN/TS 16637-2 from the two test samples²⁶) based on the following table. The eluate must comply with the criteria in the following table.

Table 1: Test criteria for ecotoxicity

Test species	Test standard	Endpoint	Criterion
Luminescent bacteria (<i>Vibrio fischeri</i>)	EN ISO 11348-1 ²⁷	Light	$LID_L \leq 8$
Algae (<i>Raphidocelis subcapitata</i> or <i>Desmodesmus subspicatus</i>)	EN ISO 8692 ²⁸	Growth	$LID_A \leq 4$
Crustaceans (<i>Daphnia magna</i>)	EN ISO 6341 ²⁹	Mobility	$LID_D \leq 4$
umu test	ISO 13829 ³⁰	Genotoxicity	$LID_{EU} \leq 1.5$

Compliance verification

The applicant shall submit a test certificate that verifies compliance with the criteria. The testing laboratory must have implemented a quality assurance system according to DIN EN ISO/IEC 17025 "General requirements for the competence of testing and calibration laboratories" or a comparable standard (e.g. GLP) and confirm that this is the case in the test report. The test certificate may not be more than one year old at the time the application is submitted.

3.2.3 Requirements for products used to produce permeable surface layers (voluntary)

Concrete products used to produce permeable surface layers must be suitable for this purpose according to the "Merkblatt versickerungsfähige Verkehrsflächen" (M VV)³¹ (Fact sheet on permeable traffic surfaces) and must also comply with the requirement for the infiltration coefficient³² of the paved surface ($k_i \geq 3 \cdot 10^{-5} \text{ m/s}$) described in the fact sheet. Every applicant must

²⁵ DIN CEN/TS 17459, Assessment of release of dangerous substances - Determination of ecotoxicity of construction product eluates

²⁶ Four eluates are thus mixed together in total.

²⁷ DIN EN ISO 11348-1 Water quality - Determination of the inhibitory effect of water samples on the light emission of *Vibrio fischeri* (Luminescent bacteria test) - Part 1: Method using freshly prepared bacteria

²⁸ DIN EN ISO 8692 Water quality - Fresh water algal growth inhibition test with unicellular green algae

²⁹ DIN EN ISO 6341 Water quality - Determination of the inhibition of the mobility of *Daphnia magna* Straus (Cladocera, Crustacea) - Acute toxicity test

³⁰ ISO 13829 Water quality - Determination of the genotoxicity of water and waste water using the umu-test

³¹ M VV – Merkblatt für Versickerungsfähige Verkehrsflächen (FGSV No. 947) (Fact sheet on permeable traffic surfaces). Publisher: Road and Transportation Research Association (FGSV). Available from the FGSV Verlag GmbH, Cologne.

³² This value indicates the speed (unit m/s) at which water infiltrates vertically through a layer. It is thus the crucial parameter for determining the surface infiltration rate of a component or construction material ("Merkblatt für versickerungsfähige Pflasterbefestigungen aus Beton" (Fact sheet on permeable paved surfaces made of concrete)). <https://www.betonstein.org/slq/>.

have at least one permeable variant of its surface elements (for each product portfolio to be certified)ⁱ and provide corresponding installation instructions that state the recommended grouting materials and grout widths. The installation instructions must ensure that all of the rainwater that falls onto the permeable surface can generally seep through it when the product is installed accordingly³³.

Compliance verification

The applicant shall declare compliance with the requirement for the infiltration coefficient, submit a corresponding test certificate from an independent testing laboratory and submit the installation instructions. The test must be carried out in accordance with the testing regulations TP Gestein-StB Part 8.3.3³⁴, TP Gestein-StB Part 8.3.4³⁵ or ASTM C 1781/C 1781M³⁶. Information on the grout width and grout ratio (proportion of the total area covered by the grout) must be provided as a minimum for the paving blocks and flags used for the test. Information on the type of stone, grain size distribution and resistance to grain fragmentation must be provided as a minimum for the bedding and grouting material used and its use must be recommended in the installation instructions.

3.3 Key values for the environmental impact

The product according to Paragraph 2 must have a valid EPD according to DIN EN 15804.

Compliance verification

The applicant shall submit a valid Environmental Product Declaration (EPD) according to DIN EN 15804 for the product and state the location/link where the EPD is publicly accessible.

3.4 Energy efficiency and procurement of electricity from renewable energy sources

The applicant must produce an energy statement that includes information on the energy consumption at the plant for the manufacture of the concrete products and the parameters used to control energy consumption. The applicant must monitor and control the processes with the aim of maintaining the most stable operation of the plant with a low energy consumption. The

³³ This is a prerequisite for the partially sealed surfaces being granted an exemption from municipal rainwater fees (e.g. in Berlin) (<https://regenwasseragentur.berlin/massnahmen/regenwasser-versickern/#section-kosten>).

³⁴ TP Gestein-StB Part 8.3.3 – Technische Prüfvorschriften für Gesteinskörnungen im Straßenbau Bestimmung des Infiltrationsbeiwertes mit dem Tropf-Infiltrimeter – in situ-Verfahren (Technical testing regulations for aggregates in road construction – Determination of the infiltration coefficient by drip infiltrimeter – in-situ method) (FGSV No. 610/833). Publisher: Road and Transportation Research Association (FGSV). Available from the FGSV Verlag GmbH, Cologne.

³⁵ TP Gestein-StB Part 8.3.4 – Technische Prüfvorschriften für Gesteinskörnungen im Straßenbau – Bestimmung des Infiltrationsbeiwertes mit dem Doppelring-Infiltrimeter – in situ-Verfahren (Technical testing regulations for aggregates in road construction – Determination of the infiltration coefficient by double ring infiltrimeter – in-situ method) (FGSV No. 610/834). Publisher: Road and Transportation Research Association (FGSV). Available from the FGSV Verlag GmbH, Cologne.

³⁶ ASTM C 1781/C 1781M:2021. Standard Test Method for Surface Infiltration Rate of Permeable Unit Pavement Systems. https://dx.doi.org/10.1520/C1781_C1781M-21 This test method can be used to verify the infiltration performance of a permeable plaster system if the drainage joints are filled with the aggregate prescribed for this system.

applicant must maintain an organisational structure to enable a continuous improvement in energy efficiency.

100% of the electricity consumed by the applicant must come from renewable energy sources as defined in Directive (EU) 2018/ 2001³⁷ and any electricity drawn from the grid must also be labelled accordingly. The electricity drawn from the grid must correspond to the supplied proofs of origin for the purchased electricity. In the electricity labelling data (according to Article 42 of the German Energy Act (Energiewirtschaftsgesetz)), 100% of the electricity consumed by the applicant must be from renewable energies with proofs of origin. Alternatively, the applicant may use its own renewable energy power plants to produce energy for its own consumption. The possibility of double counting electricity from renewable energy sources drawn from the grid must be effectively excluded.

Compliance verification

The applicant shall submit the energy statement and state which organisational structure is used to ensure a continuous improvement in energy efficiency. The applicant shall declare compliance with the requirement for the consumption of electricity from renewable energy sources and submit verification in the form of electricity labelling for the renewable energies with proofs of origin (Annex). If relevant, the consumption of electricity from the applicant's own renewable energy plants can be verified by submitting a certificate of ownership for the generation plants, data taken from corresponding measurement points on the amount of electricity produced and consumed and a declaration that the plants are not subsidised according to the German Renewable Energies Act (EEG).

Verifications for international sites must comply with the requirements in EU Directive 2018/2001/EU (Article 19). This can be verified, for example, with "Full Membership" of the Association of Issuing Bodies (<https://www.aib-net.org/facts/aib-member-countries-regions/aib-members>). Other verifications may need to be examined in individual cases. These verifications must be re-submitted for every year of the term of the contract on the use of the environmental label. The electricity labelling for the first year can be submitted at a later date.

3.5 Participation in a cross-manufacturer take-back system for concrete products (voluntary)

Optionally, the applicant can participate in an already existing take-back system or establish such a system in cooperation with other manufacturers. The system will take back new products or old concrete products for reuse or to achieve the highest possible level of recycling according to the German Circular Economy Act (KrWG).

Compliance verification

The applicant shall declare compliance with the requirement (Annex) and enclose confirmation of participation in the relevant system and the corresponding information provided to customers as verification.

³⁷ Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources

3.6 Offsetting of CO₂ emissions / contribution to climate change mitigation / emission reduction credits

The non-avoidable and non-reducible CO₂ emissions emitted during the production of the concrete products and the manufacture and supply of their source materials (e.g. aggregates and cement) must be offset in accordance with the latest version of the [Requirements for the quality of emission reduction credits](#).

Compliance verification

The requirement is considered to be fulfilled if the applicant cancels certified emission reduction credits for the CO₂ emissions emitted during the manufacture and transport of the concrete products – including their source materials (in accordance with the information in Paragraph 3.7). Verification of the cancellation of the emission credits shall be submitted in a suitable form. The offsetting measures or contribution to climate change mitigation shall be carried out annually based on the annual production figures. At the end of each calendar year, the environmental impact must be calculated and offset in the following year – e.g. in 2026, the environmental impact in 2025 is calculated and offset. It is important to ensure that the emissions in the production period are offset based on the valid EPD and the annual changes in the production and transport volumes. The production volumes must also be stated on an annual basis. Verifications for the first year can be submitted at a later date.

3.7 Product information

The total global warming potential of the concrete products (according to EN 15804:2012+A2:2019, in kg CO₂ equivalents per m², for concrete furniture per kg) must be stated in the product information on the applicant's website. The framework conditions for the scenario for calculating the figure for the "transport to the construction site" (Module A4) must also be stated, including the assumed average transport distance travelled. In addition, it is permissible to state that the CO₂ emissions have been offset. Advertising using the terms climate neutral or greenhouse gas neutral based on the offsetting measures is not permitted.

If the applicant participates in a voluntary take-back system, he/she is also permitted to advertise this fact.

The product information must indicate which product is suitable for producing a permeable surface layer with an infiltration coefficient according to the "Merkblatt versickerungsfähige Verkehrsflächen" (Fact sheet on permeable traffic surfaces). The applicant is permitted to advertise this product as "suitable for permeable applications" (in the explanatory field). The product information must contain care instructions that describe how to permanently maintain the permeability of the paved surface. The product information may not recommend the use of any chemical cleaning agents. It must also point out that the use of de-icing salt or chemical de-icing agents is not permitted on permeable surfaces.

Compliance verification

The applicant shall declare compliance with the requirement and submit the product information and the location where it can be found on the applicant's website. The applicant shall take measures to ensure that this information is available to end customers via his/her suppliers.

3.8 Packaging

The manufacturing site must be stated on the packaging. Every delivery must be given an identification number and the delivery documents must include information on the manufacturer. The products must be transported on reusable pallets (except for in the case of street furniture and special components). Packaging for the transport and sale of concrete products may not contain any PVC. Sales packaging must contain at least 50% recycled materials. An exception to this requirement is made for transport packaging, such as shrink hoods for pallets. In addition, all packaging must comply with the minimum standards for determining the recyclability of packaging³⁸.

Compliance verification

The applicant shall declare compliance with the requirement.

3.9 Outlook

In a future revision of the ecolabel, the clinker content in the cement will be restricted to a max. of 79%. Furthermore, a possible increase in the recycled content of the aggregates will be considered.

4 Applicants and Parties Involved

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

Parties involved in the award process are:

- RAL gGmbH to award the Blue Angel Environmental Label,
- the federal state being home to the applicant's production site,
- Umweltbundesamt (German Environmental Agency) which after the signing of the contract receives all data and documents submitted in applications for the Blue Angel in order to be able to further develop the Basic Award Criteria.

5 Use of the Environmental Label

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

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

Contracts on the Use of the Environmental Label are concluded to fix the terms for the certification of products under Paragraph 2. Such contracts shall run until December 31, 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.

³⁸ https://www.verpackungsregister.org/fileadmin/files/Mindeststandard/Mindeststandard_VerpackG_Ausgabe_2023.pdf

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

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

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

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

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Appendix A Assignment of hazard categories and hazard information according to Paragraph 3.1.1

The following table assigns the hazard categories stated in Paragraph 3.1.1 to the corresponding hazard statements (H Phrases) according to the CLP Regulation (EC) No. 1272/2008.

CLP Regulation (EC) No. 1272/2008		
Hazard category	Hazard statements	
	H Phrases	Wording
Acute toxicity substances		
Acute Tox. 1 Acute Tox. 2	H300	Fatal if swallowed
Acute Tox. 1 Acute Tox. 2	H310	Fatal in contact with skin
Acute Tox. 1 Acute Tox. 2	H330	Fatal if inhaled
Germ cell mutagenic substances		
Muta. 1A Muta. 1B	H340	May cause genetic defects
Carcinogenic substances		
Carc. 1A Carc. 1B	H350	May cause cancer
Reprotoxic substances		
Repr. 1A Repr. 1B	H360	May damage fertility or the unborn child
Repr. 1A Repr. 1B	H360D	May damage the unborn child
Repr. 1A Repr. 1B	H360F	May damage fertility
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 ENV 1	EUH430	May cause 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

CLP Regulation (EC) No. 1272/2008		
Hazard category	Hazard statements	
	H Phrases	Wording
vPvM	EUH451	Can cause very long-lasting and diffuse contamination of water resources
Water-hazardous substances		
Aquatic Chronic 1	H410	Very toxic to aquatic life with long-lasting effects.
Aquatic Chronic 2	H411	Toxic to aquatic organisms with long-lasting effects.
Aquatic Chronic 3	H412	Harmful aquatic organisms with long lasting effects.
Other environmental hazards		
Ozone 1	H420	Harms public health and the environment by destroying ozone in the upper atmosphere.

Appendix B List of approved in-can preservatives

Alternatively, the following substances or substance combinations, where the individual substances in the product have a total content of ≤ 400 ppm, may be used for the purposes of in-can preservation of the chemical ingredients (e.g. coatings, waterproofing agents) in the concrete products. If substances are reclassified, no finished products labelled with H317 may be used as an ingredient in the recipe.

Permitted Preservatives	CAS no.	Content [ppm]
DBDCB	35691-65-7	400
BIT	2634-33-5	360
Bronopol	52-51-7	200
Natrium pyrithione	3811-73-2	200
Zinc pyrithione	13463-41-7	200
Combination CIT/MIT (3:1)	55965-84-9	Total < 15
CIT	26172-55-4	
TiO ₂ AgCl based on AgCl	7783-90-6	100
IPBC	55406-53-6	80
Substances that may not be actively added		
Total of		< 15
BBIT	04/07/4299	
MIT	2682-20-4	
OIT	26530-20-1	
DTBMA	2527-58-4	

In accordance with the Biocidal Product Regulation (EU No 528/2012), an active substance dossier for the stated preservatives for products during storage (product-type 6) has been submitted. If inclusion on the list of approved substances for product type 6 is rejected after an evaluation has been completed, the use of this substance is no longer permitted.