

BLUE ANGEL

The German Ecolabel



Organic growing media and potting soils

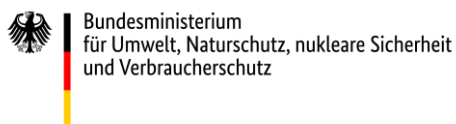
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Basic Award Criteria

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The Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (Bundesministerium für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz) is the owner of the label. It regularly provides information on the decisions taken by the Environmental Label Jury.



The German Environment 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.



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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1 Introduction

1.1 Preface

In cooperation with the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, the German Environment 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 these conditions.

1.2 Background

Plants require growing media that provide them with space to grow roots and allow them to be supplied with air, water and nutrients¹ when they are planted in e.g. a bed or plant pot on a balcony or as a green plant in the office. However, growing media are also used in commercial gardens and landscaping companies or in communal areas (e.g. public green spaces). Organic growing media have similar characteristics to soil unlike mineral substrates such as stone wool. The term "potting soil" is also used for organic growing media in the private sector.

In the European Union, Germany is one of the largest producers and consumers of growing media.² Approximately 8.1 million m³ of growing media was produced in 2022, including approximately 5.8 million m³ of peat.³

Peat has established itself over decades as a raw material for growing media because it has very good characteristics for the production of growing media used to grow plants. However, the use of peat can have negative effects on the environment. As it takes a very long time for peatlands to form, peat is considered a non-renewable raw material and the carbon stored in the peat is emitted as CO₂ when it is used. In order to protect the climate, it is necessary to retain the carbon stored in the peat, which is why the rewetting of moorland is an important measure in the Climate Action Programme 2030 from the German government.⁴ The renaturation and conservation of moors also makes an important contribution to promoting biodiversity. Therefore, it is necessary for the peat in the growing media to be replaced by renewable raw materials, also called "peat substitutes".

It is already possible today to completely avoid the use of peat in the hobby sector. Around 1.1 million m³ of peat-free potting soil was thus produced in 2022 (around 22% of the total production of potting soil). In the professional sector, the market share of peat-free growing media is

¹ Quality Assurance Association for Substrates, <https://www.substrate-ev.org/>; DüngG (German Fertilizer Act), https://www.gesetze-im-internet.de/d_ngg/; each last accessed on 26/07/2023

² Heinrich Böll Foundation, Torfabbau und Klimakrise (Peat extraction and the climate crisis). <https://www.boell.de/de/2023/01/10/torfabbau-und-klimakrise-ein-fossiler-rohstoff-aus-dem-moor>, last accessed 25/08/2023.

³ Production statistics for hobby potting soils and growing media - production year 2022, IVG, GGS, May 2023; <https://ivg.org/category/ivg-news/>

⁴ Climate Action Programme 2030 from the German government for the implementation of the Climate Action Plan 2050, <https://www.bundesregierung.de/breg-de/schwerpunkte/klimaschutz/massnahmen-programm-klima-1679498>, last accessed 21/08/2023

significantly lower at approx. 3%.³ Switching over to peat-free alternatives is made more difficult here by stricter economic demands – due to many years of experience with the use of peat-based growing media and concerns about reliable plant cultivation, increased production costs and the availability of peat substitutes. Therefore, the Climate Action Programme 2030 envisages a complete elimination of the use of peat in the private sector by 2026 and the elimination of its use as far as possible in the professional sector by 2030.

Peat-free growing media are usually a mix of several different peat substitutes because the desired quality parameters⁵ can only be achieved with a suitable combination of different raw materials. Green material compost, wood fibres, bark humus and horticultural coconut products are currently the main materials used in these products. Responsible sourcing of these peat substitutes in accordance with sustainability criteria is important here in order to reduce the negative environmental impact of the substitutes as much as possible.

In the hobby sector, green material compost (composted green cuttings from horticulture and landscaping) is the most commonly used peat substitute (accounting for 22% of the German market by volume in 2022).³ One particular advantage of this substitute is its use of waste material, while a disadvantage is the high weight of the compost and the resulting transport emissions. Organic compost can also be added in small quantities if it has a sufficient level of purity. The use of plant-based fermentation residue composts (aerobically stabilised fermentation residues) is also being investigated. Wood fibres, which are currently produced from softwood, are the main peat substitute used in professional growing media (accounting for 13% of the German market by volume in 2022).³ Spruce bark is also primarily used today for bark humus, which is produced by composting chipped pieces of bark and accounted for 4% of the German market³ by volume in 2022. In both cases, there is currently some competition for the use of these materials, especially for the purpose of energy generation.

Horticultural coconut products are also used as a peat substitute (accounting for a total of 2% of the German market by volume in 2022)³, because they have comparable physical properties to peat. These materials are by-products of the production processes for coconut fibre products, such as mats and sails, and arise especially in Sri Lanka and India. Due to the long transport routes, insufficient disposal of waste waters in some cases and inadequate social standards, however, these products are often viewed as being problematic. They are shipped in a compressed form to reduce transport emissions.

The utilization of other raw materials is desirable in order to guarantee that the use of peat can be eliminated in the future. This includes residual substances from the local recycling of agricultural products and the use of paludi-biomass. Paludi-biomass is biomass produced from the rewetting of moors. It is one solution for utilising these areas for agricultural purposes again. Mineral raw materials in comparatively low volumes (a total proportional volume of 3 %)³ are added to the organic growing media. These include lava rock (especially perlite), clay and sand, which are sourced from mining.

The Blue Angel ecolabel can be used to certify organic growing media intended for both the private and commercial sectors. The growing media must be peat-free in order to protect moorlands. The requirements placed on the peat substitutes are designed to promote the sustainable and transparent use of the raw materials. Therefore, residual organic materials should preferably be used to exploit this potential before renewable raw materials are purposefully cultivated for

⁵ e.g. structural stability, water retaining capacity, air porosity, rewettability or settability of the pH value

this purpose and place a corresponding demand on land.⁶ If wood is used in the growing media, the ecolabel aims to prevent the certified products competing with more high-quality and durable uses for the wood in e.g. the building sector and also to ensure the use of sustainable forestry. In addition, the criteria focus on social aspects and waste water disposal when using horticultural coconut products. For the proofs of origin for the materials, the ecolabel also relies on certification systems that guarantee traceability and compliance with sustainability criteria along the supply chain. The HORTICERT⁷ certification system is currently being developed and introduced for peat substitutes. If the products use biomass from paludiculture, the ecolabel promotes the use of moorlands that have been rewetted in accordance with nature conservation guidelines. Mineral raw materials should be sourced from responsible mining. Strict requirements are also placed, for example, on the presence of heavy metals and organic pollutants. Certified growing media must also verify that they are fit for their intended use. This includes having a high plant compatibility, a stable nitrogen balance and limited levels of impurities in the form of plastic or weed seeds.

1.3 Objectives of the environmental label

This ecolabel may be used to certify organic growing substances that

- completely avoid the use of peat,
- use organic raw materials to promote a circular economy,
- aspire to use raw materials in a sustainable and transparent way,
- and can verify their fitness for use and their compliance with strict pollutant limits.

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



⁶ Paludiculture on moorlands that have been rewetted with the aim of conserving the peatlands in order to avoid CO₂ emissions are excluded here.

⁷ developed by Meo Carbon Solutions GmbH on behalf of the Federal Ministry of Food and Agriculture (BMEL), represented by the Agency for Renewable Resources (Fachagentur für Nachhaltende Rohstoffe e.V. – FNR).

1.4 Definitions and abbreviations

1.4.1 Definitions

Waste: According to the EU Waste Framework Directive 2008/98/EC, waste is any substance or object which the holder discards or intends or is required to discard. According to the German Biomass Research Centre (DBFZ) (2021), (biogenic) waste is a subcategory of residual materials.

Potting soil: A growing media designed for use in the hobby sector. Other terms such as garden soil, potting mix or planting media also exist.

Biowaste: Biodegradable garden and park waste (green waste), food and kitchen waste from households, offices, restaurants, wholesalers, canteens, catering companies and retail shops, as well as comparable waste from food processing companies (organic waste)

Soil conditioners: According to the German Fertilizer Act (DüngG), soil conditioners are substances without a significant nutritional content and microorganisms designed to a) influence the biological, chemical or physical properties of the soil in order to improve the growth conditions for plants or crops or b) promote the symbiotic binding of nitrogen.

Soil improvers: According to the EU Fertilizer Regulation, the function of soil improvers is to maintain, improve or protect the physical or chemical properties, the structure or the biological activity of the soil to which it is added. The European Ecolabel thus also explicitly includes mulch under this term.

Fertilizer: According to the German Fertilizer Act (DüngG), fertilizers are substances (except for carbon dioxide and water) designed to a) provide nutrients to plants or crops or b) maintain or improve soil fertility. It is defined in the EU Fertilizer Regulation as a product whose function is to provide plants or mushrooms with nutrients.

Horticultural coconut products: Products produced from the mesocarp⁸ of coconuts and used as a raw material in growing media, especially coconut pulp and (short) coconut fibres.

Growing medium: According to the German Fertilizer Act (DüngG), a growing medium is designed to provide plants or crops with room to grow roots and is introduced into the soil, placed on top of the soil or used for applications without soil. In the EU Fertilizer Regulation, it is described as a "product other than soil in situ, the function of which is for plants or mushrooms to grow in". If the product is used in or on soil, the EU Fertilizer Regulation uses the term "soil improver". The term growing medium is primarily used in the professional sector. Other terms such as potting soil, garden soil, potting mix or planting media also exist in the hobby sector. This ecolabel uses the definition given in DüngG.

Plastic: Polymers created through chemical synthesis, including chemically modified natural substances.

Organic growing medium: A growing medium with an organic element, which can also have mineral components.

Mineral growing medium: A purely mineral growing media, e.g. mineral wool. Not included in this ecolabel (see the Scope in Paragraph 2).

Mulch: According to the EU Ecolabel, mulch is a protective covering placed around plants on the topsoil whose specific functions are to prevent the loss of moisture, control weed growth, regulate soil temperature and reduce soil erosion.

⁸ The outer, fibrous part of the coconut underneath the hard shell.

By-products: According to the German Biomass Research Centre (DBFZ) (2021), (biogenic) by-products are a subcategory of residual materials.

Paludiculture: According to the Federal Agency for Nature Conservation (BfN), paludiculture is defined as the productive cultivation of wet moors that conserves peat or ideally encourages the formation of peat⁹ (e.g. cultivation of sphagnum moss or reed mace).

Plant fortifiers: According to the German Fertilizer Act (DüngG), plant fortifiers are substances without a significant nutritional content that are designed to biologically or chemically alter plants in order to achieve agricultural benefits or technical benefits related to the production and application of the plants, insofar as they are not plant fortifiers in the sense of § 2 Number 10 of the German Plant Protection Act.

Residual material: According to the German Biomass Research Centre (DBFZ) (2021), residual (biogenic) materials are different to the main biogenic product (e.g. cultivated biomass, stem wood) and are defined as biogenic by-products (e.g. agricultural crop residues, industrial residues, wood and forestry residues) and biogenic waste (biowaste, plant cuttings, waste wood, sewage sludge).

Raw material: A raw material used to produce the growing media (substrate) that adds to the volume (structure of the growing media, provision of space to grow roots) of the growing media (RAL GZ 250). Therefore, raw materials make a contribution to the purpose of the growing media according to the German Fertilizer Act (DüngG). The raw materials are mixed with one another in different volumes and their proportions in the product are given in percent.¹⁰ If the raw material is not peat, organic raw materials are currently also frequently known as "peat substitutes".

Peat substitute: A renewable organic raw material in growing media that is not peat.

Growing media additive: According to the German Garden Industry Association (IVG), a growing media additive is a substance added to growing media that does not contribute to its volume because it is almost exclusively added in small quantities (e.g. fertilisers, lime, wetting and binding agents).¹¹

1.4.2 List of abbreviations

AT4	Respiratory activity (oxygen consumption within 4 days in mg/g according to DepV)
AT-UZ 32	Austrian Ecolabel UZ 32 "Peat-free growing media, soil additives, fertilizers and composts", January 2020
BfN	Federal Agency for Nature Conservation (Bundesamt für Naturschutz) (www.bfn.de/)
BGK	German Quality Assurance Organisation for Compost (Bundesgütegemeinschaft Kompost e. V.) (www.kompost.de)
CMC	Component Material Category (according to the EU Fertilizer Regulation)
C _{org}	Organic carbon content
dI-PCB	Dioxine-like polychlorinated biphenyls
DüMV	German Fertilizer Ordinance (Düngemittelverordnung) 2012, in the version from October 2019

⁹ <https://www.bfn.de/paludikultur>; last accessed: 04/01/2023

¹⁰ <https://substratbuch.ivg.org/substratbuch/allgemeines/begriffsbestimmungen/substratausgangsstoffe>; last accessed: 09/01/2023

¹¹ <https://substratbuch.ivg.org/substratbuch/allgemeines/begriffsbestimmungen/substratzusaetze>; last accessed: 09/01/2023

DüngG	German Fertilizer Act (Deutsches Düngegesetz) 2009, in the version from December 2022
DepV	German Landfill Ordinance (Deutsche Deponieverordnung) 2009, in the version from July 2021
EBC	European Biochar Certificate (https://www.european-biochar.org/)
EU-UZ 048	European Ecolabel for growing media and soil improvers, July 2022
FBK	Professional Association of Bavarian Compost Manufacturers (Fachvereinigung Bayerischer Komposthersteller e.V.) (www.fbk-ev.de)
FM	Fresh mass
FSI	Area sum index (flächensummenindex) / area sum of foreign matter (level of impurities according to the BGK)
GGG	Quality Assurance Association for Growing Media for Plants (Gütegemeinschaft Substrate für Pflanzen e.V.) (https://www.substrate-ev.org/)
IVG	German Garden Industry Association (Industrieverband Garten e.V.) (https://ivg.org/der-ivg/)
CFU	Colony forming units
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyls
PCDD/F	Polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF)
PFT	Perfluorinated surfactants
QLA	Quality Assurance Association for Agricultural Waste Utilization (Gesellschaft für Qualitätssicherung Landbauliche Abfallverwertung mbH) (www.qla.de)
ReSyMeSa	Research System on Measuring Bodies and Authorised Experts (Recherchesystem Messstellen und Sachverständige) (www.resymesa.de/ReSyMeSa/Allgemein)
RHP	RHP Foundation, Dutch quality mark for growing media; originally: "Regeling HandelsPotgronden" (https://www.rhp.nl/en/home)
RSB	Roundtable on Sustainable Biomaterials (https://rsb.org/)
DM	Dry mass
UBA	German Environment Agency (Umweltbundesamt) (www.umweltbundesamt.de/)
UZ	Ecolabel (Umweltzeichen)
VDLUFA	Association of German Agricultural Investigation and Research Institutions (Verband deutscher landwirtschaftlicher Untersuchungs- und Forschungsanstalten)
WHO-TEQ	World Health Organization Toxicity Equivalent

2 Scope

The product group "organic growing media and potting soils" covers organic growing media designed for applications without soil and for products used in or on top of the soil to provide plants with root space (definition in DüngG). The scope covers both products designed for the professional sector and also those for the private and hobby sector (potting soils).

Purely mineral growing media are excluded from the scope of these Basic Award Criteria. Soil conditioners, fertilisers and plant fortifiers, which are also sometimes described as soil improvers, are also excluded from the scope of these Basic Award Criteria but can be used as growing media additives as long as they comply with the requirements in this ecolabel.

3 Requirements

The following requirements were developed based on the award criteria for the European Ecolabel for growing media and soil improvers (EU-UZ 048, 2022). The latest version of the Austrian Ecolabel (AT-UZ 32, 2020) was also taken into account. Furthermore, the legal regulations at a German and European level and the rules for the RAL Quality Marks for substrates for plants and composts (RAL-GZ 250, RAL-GZ 251) were also taken into consideration in the development of the quality criteria.

The main criteria with respect to quality assurance (Paragraph 3.5 Limit values and Paragraph 3.6 Fitness for use) are taken from the EU Ecolabel (EU-UZ 048). However, the values and also some of the methods were adapted to the situation in Germany following consultation with the relevant stakeholders and some additional parameters were added (e.g. other organic pollutants). As is the case in the EU Ecolabel and Austrian Ecolabel, the Blue Angel promotes the use of residual organic materials, although with additional criteria for the origin of the raw materials in order to promote their sustainable procurement (Paragraph 3.2). Just like in AT-UZ 32, the Blue Angel places requirements on the packaging, although in a different form.

For all of the named standards, legal regulations and certification schemes, the rules and regulations in place at the time of application are valid, unless specifically stated otherwise.

A list of the legal regulations and testing standards named in this document can be found in Supplement A.

3.1 Permissible input materials and composition of the growing media

3.1.1 Raw materials in the substrate

The organic growing media may not contain any intentionally added peat or other non-renewable organic raw materials (e.g. xylitol). The raw materials in the substrate must be authorised according to European law for organic agriculture (Commission Implementing Regulation (EU) 2021/1165 Annex II). Only residual biogenic materials, i.e. biogenic waste (e.g. green and bio-waste) and biogenic by-products (e.g. agricultural crop residues, industrial residues, wood and forestry residues) may be used as organic raw materials. In addition, raw materials from paludiculture on rewetted moorlands may be used.

3.1.2 Fertilizers and other growing media additives

Growing media additives are permitted insofar as they are suitable for the growing media, i.e. they are authorised according to applicable laws (Commission Implementing Regulation (EU) 2021/1165 Annex II, German Fertilizer Ordinance, European Fertilizer Regulation). As is the case for the raw materials in the substrate, the use of any substances described in Paragraph 3.1.3 is prohibited. In particular, no guano or plastic-coated fertiliser may be used.

Compliance verification

The applicant shall name the raw materials used in the substrate and state their proportions by volume in the product. The applicant shall declare that the organic raw materials are sourced from residual biogenic materials (the applicant may subsequently be asked to provide verification) or from sustainable paludiculture. In addition, the applicant shall state the approximate amount of the certified product that is produced annually (Annex 1).

A full list of all the other substances intentionally added to the raw materials, including the official safety data sheets where relevant, shall be enclosed with the application. The applicant may subsequently be asked to provide information on the quantities used.

3.1.3 Restrictions and general exclusion of the addition of substances, mixtures and other additives with certain characteristics

3.1.3.1 General substance requirements

Observance of the legal regulations according to European and German chemical law is a prerequisite; this includes, in particular, the REACH Regulation Annexes XIV and XVII, the POP Regulation Annex I and the CLP Regulation.

The following substances and mixtures may not be added to the organic growing media as a constituent component¹²:

- Substances which are identified as particularly alarming under the European Chemicals Regulation REACH (1906/2006/EC) 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").¹³
- Substances and mixtures that according to Regulation (EC) No. 1272/2008 (CLP Regulation)¹⁴ have been classified in the following hazard categories or which meet the criteria for such classification:
 - ◆ acutely toxic (poisonous) in categories Acute Tox. 1, Acute Tox. 2 or Acute Tox. 3
 - ◆ toxic to specific target organs in categories STOT SE 1, STOT SE 2 or STOT RE 1, STOT RE 2, Asp. Tox. 1
 - ◆ sensitizing substances in categories Resp. Sens. 1 (A/B) or Skin Sens. 1 (A/B)
 - ◆ carcinogenic in categories Carc. 1A, Carc. 1B or Carc. 2
 - ◆ germ cell mutagenic in categories Muta. 1A, Muta. 1B or Muta 2
 - ◆ reprotoxic (teratogenic) in categories Repr. 1A, Repr. 1B or Repr. 2, Lact.
 - ◆ endocrine disruptors with a negative effect on human health in the categories ED HH 1 or ED HH 2¹⁵

¹² Constituent components are substances or preparations added to the product or primary products and remain there unchanged 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.

¹³ List of candidates from the REACH Regulation (EC) No. 1907/2006: <https://www.echa.europa.eu/de/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 and a supplier is obligated to inform the label holder of this fact (REACH Article 33), the label holder must submit an informal notification stating the name of the substance and its CAS or EC number, as well as the planned process to substitute this ingredient.

¹⁴ 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 label holder must submit an informal notification stating the name of the substance and its CAS or EC number, as well as the planned process to substitute this ingredient.

¹⁵ New hazard categories in the CLP Regulation, legally binding for substances newly placed onto the market from 1 May 2025 at the latest and for existing substances on the market by 1 November 2026 at the latest

- ♦ endocrine disruptors with a negative effect on the environment in the categories ED ENV 1 or ED ENV 2¹⁵
- ♦ persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) characteristics¹⁵
- ♦ persistent, mobile and toxic (PMT) or very persistent, very mobile (vPvM) characteristics¹⁵
- ♦ hazardous to water in the categories Aquatic Acute 1, Aquatic Chronic 1, Aquatic Chronic 2, Aquatic Chronic 3¹⁶ or Aquatic Chronic 4

The hazard statements (H Phrases) that correspond to the hazard categories can be found in the table in Appendix B.

Compliance verification

The applicant shall declare compliance with the requirements in Annex (still to be created by RAL) to the contract pursuant to DE-UZ NEW and submit corresponding declarations from the manufacturer/suppliers and the safety data sheets (Annex 1).

RAL gGmbH must be informed immediately about all changes to the product and/or its composition and compliance with the requirement must be examined and documented again. If the term of validity of the Basic Award Criteria is extended, new declarations from the manufacturer or suppliers shall be submitted.

3.1.3.2 Special requirements for product additives

The organic growing media may not contain the following additives as constituent components:

- Pesticides (chemical plant protection agents and biocides)
- Genetically modified organisms
- Synthetic or modified polymers
- Mineral oils and mineral oil-based surfactants

Compliance verification

The applicant shall declare that none of the excluded substances named above were added to the product during the production process (Annex 1).

3.1.4 Organic proportion

The organic substances must account for a minimum proportion of 20% of the dry mass of the product. The proportion must be determined using the loss on ignition method on a predried sample at 105°C.

¹⁶ For mineral micronutrient fertilisers classified in the category Aquatic Chronic 3, the applicant can submit a request to RAL for approval of the substance as an exception if the composition complies with the DüMV. The evaluation will be carried out on a case-by-case basis in agreement with the German Environment Agency.

Compliance verification

The applicant shall submit a test report according to DIN EN 13039, DIN EN 15935, VDLUFA I A 15.2, DIN 18128 or a comparable method that includes information on the loss on ignition (Annex 1). The test report must only be submitted once at the time of the application.

3.2 Origin of the raw materials in the substrate

3.2.1 General requirements for verifying the origin

The documents that are required to verify the origin of the raw materials must not be more than six months old at the time of application. If a certification system is used, any rules for updating the documents that are imposed by the relevant certification body also apply. In particular, the applicant must inform RAL immediately if they lose their certification for a specific raw material and describe the measures that will be taken to regain certification¹⁷. In the event of a change to the source of supply, the applicant must also notify RAL about this change. The applicant must enclose appropriate verifications for the new source of supply with this notification.

In the case of raw materials that account for less than 10 % by volume of the growing media, the applicant is not required to submit any other proofs of origin^{18,19} according to Paragraphs 3.2.2 to 3.2.9. The sum of all the raw materials omitted for this reason must not exceed 20 % by volume.

3.2.2 Composts

A minimum requirement is compliance with the list of permissible raw materials for composting and fermentation plants in Annex 1 of the German Biowaste Ordinance (BioAbfV). If the applicant participates in a quality assurance system (see Paragraph 3.4), any additional requirements imposed by this system also apply.

Furthermore, the applicant must describe in a transparent manner which type of residual organic materials (green waste, biowaste, fermentation residue including information on the material input into the biogas plant) is used to produce the compost. Compost produced using fermentation residue from Nawaro plants is excluded from the scope of these Basic Award Criteria. If biomass that was produced for the purposes of fermentation is used as an input at the fermentation plant, it must not exceed a maximum limit of 20 % (by mass) of the total input material .

Compliance verification

The applicant shall list the raw materials for the compost based on the proportions added to the product (green waste compost, biowaste compost, fermentation residue compost including qualitative information on the type of material input into the fermentation plants and compliance

¹⁷ Either by complying once again with the certification criteria for the old source of supply or by switching supply to another certified source.

¹⁸ Aside from the fact in the case of organic raw materials that they must be a residual biogenic material or a peat substitute from paludiculture.

¹⁹ In the case of mineral components, the applicant must differentiate between raw materials and additives. Expanded minerals, volcanic cinder and pumice are always considered to be raw materials. In the case of clays and sands, the criterion for distinguishing between a raw material and an additive is a cut-off threshold of 5 % by volume. If the clay or sand accounts for more than 5 % by volume, it is considered a raw material. If the clay/sand is added according to its mass, the applicant must also provide information on its (dry) bulk density.

with the requirement for the fermentation of residual materials). This information should be provided as amounts or percentage values (rounded annual values). If composts from different production plants are used, an average value across all plants is sufficient (Annex 1). A valid HORTICERT certificate, which highlights the raw materials for the composts used in the product as described above, will be accepted as verification.

If the fermentation plants also use biomass that was produced for the purposes of fermentation, the plant operator who supplies the fermentation residues must verify the proportion of the total input materials accounted for by this biomass (average annual value, maximum limit of 20%).

3.2.3 Bark humus

Only bark that is produced during the debarking process in sawmills may be used to produce the bark humus. The applicant must verify that the bark used in the product complies with the requirements for sustainable forestry.

Compliance verification

If the applicant produces the bark humus themselves, he/she shall verify by submitting a valid COC certificate from the supplier and an appropriate claim on the delivery note/invoice for all of the raw materials used to produce the bark humus that at least 70 % of the bark by mass is certified and shall also verify that the bark complies with the requirements of the Forest Stewardship Council (FSC), the Naturland criteria²⁰ or the Programme for the Endorsement of Forest Certification Schemes (PEFC) for sustainable forestry or a comparable standard²¹.

If the applicant purchases bark humus that is not certified according to the stated requirements, the bark humus producer can submit a declaration to verify that the bark used to produce the humus satisfies the requirements of the FSC, Naturland, PEFC or an equivalent standard. This declaration must be accompanied by the valid CoC certificate from the supplier of the bark to verify that at least 70 % of the bark by mass is certified. In addition, delivery notes/invoices including a corresponding claim from the bark humus producer must be submitted for the bark that was purchased to produce the sold bark humus (Annex 2).

HORTICERT certification will be recognised as verification of compliance with this criterion. The applicant shall also confirm that he/she only uses bark that was produced during the debarking process in sawmills.

3.2.4 Wood fibres

No high-quality stem wood may be used in the production of wood fibres. More specifically, waste wood, green waste wood, wood cuttings from landscaping and residual forest wood may be used if they comply with the requirements stated below.

3.2.4.1 Waste wood, green waste wood and wood cuttings from landscaping

The use of waste wood is desirable but only permitted if it can be verified that the waste wood is untreated (waste wood category A I according to AltholzV) and free of rot (no additional

²⁰ <https://www.naturland.de/de/naturland/wofuer-wir-stehen/oeko-wald.html>; last accessed: 23/01/2023

²¹ As with the federal decree for the purchase of wood products, verification of comparability must be confirmed by the Thünen Institute or the BfN.

requirements). The use of wood from green waste and wood cuttings from landscaping insofar as it is suitable from a technical perspective (no additional requirements) is also permitted.

Compliance verification

If waste wood (chemically untreated) and green waste/wood cuttings from landscaping are used in the product, the applicant shall submit a declaration from the supplier to confirm that it complies with this wood category. If the applicant uses wood fibres, he/she shall submit a declaration from the producer of the wood fibres to confirm that they comply with this wood category. The applicant must also state the supplier of the respective type of wood (Annex 1).

3.2.4.2 Industrial wood residues

The use of chemically untreated wood residues that are generated during the processing of stem wood (e.g. in sawmills) is also permitted. The applicant must verify that this wood complies with the requirements for sustainable forestry.

Compliance verification

If the applicant produces the wood fibres themselves, he/she shall submit a declaration from its supplier to verify that the wood is "chemically untreated residual wood". In addition, the applicant shall verify by submitting a valid COC certificate from the supplier and an appropriate claim on the delivery note/invoice for all of the wood raw materials used to produce the product that at least 70 % of the wood by mass is certified and shall also verify that the wood complies with the requirements of the Forest Stewardship Council (FSC), the Naturland criteria or the Programme for the Endorsement of Forest Certification Schemes (PEFC) for sustainable forestry and a chain of custody (CoC) or a comparable standard.²¹

If the applicant purchases wood fibres that are not certified according to the stated requirements, the wood fibre producer can submit a declaration to verify that the wood used to produce the wood fibres satisfies the requirements of the FSC, Naturland, PEFC or an equivalent standard. This declaration must be accompanied by the valid CoC certificate from the supplier of the wood that verifies that at least 70 % of the wood by mass is certified. In addition, delivery notes/invoices including a corresponding claim from the wood fibre producer must be submitted for the wood that was purchased to produce the sold wood fibres (Annex 2).

HORTICERT certification will be recognised as verification of compliance with this criterion.

3.2.4.3 Residual forest wood

Wood sourced from continuously forested areas must not be high quality stem wood and must comply with the requirements for sustainable forestry. In particular, the applicant must verify that:

- no stem wood with a diameter > 20 cm has been used,²²
- non-coarse wood (diameter < 7 cm) is left on the floor of the forest and no methods to utilise the whole tree are used,

²² This requirement does not apply if the applicant can verify that the wood is beetle-infested wood or has been classified with a lower wood grade for other reasons (classification as energy wood in the sense of the German Framework Agreement for Timber Trade (Rahmenvereinbarung für den Rohholzhandel in Deutschland – RVR 2020) or in the sense of another comparable sorting method for forest wood).

- no pesticides are used (except for the purpose of pest control in accordance with an official order),
- no fertiliser is used to improve the yield and
- the sustainability requirements for the type of land in Directive (EU) 2018/2001 or any replacement directives are fulfilled.

Compliance verification

If the applicant produces the wood fibres themselves, he/she shall submit a declaration from its supplier that the wood is "residual forest wood", i.e. it does not contain any high-quality stem wood (diameter > 20cm) or if stem wood is used it is classified as energy wood in the sense of RVR 2020 or in the sense of a comparable sorting method.

In addition, the applicant shall verify by submitting a valid COC certificate from the supplier and an appropriate claim on the delivery note/invoice for all of the wood raw materials used to produce the product that at least 70 % of the wood by mass is certified and shall also verify that the wood complies with the requirements of the Forest Stewardship Council (FSC), the Naturland criteria or the Programme for the Endorsement of Forest Certification Schemes (PEFC) for sustainable forestry and a chain of custody (CoC) or a comparable standard²¹. and shall also verify that the other four criteria stated above are contained within the standard from the certified institution.

If the applicant purchases wood fibres that are not certified according to the stated requirements, the wood fibre producer can submit a declaration to verify that the wood used to produce the wood fibres satisfies the requirements of the FSC, Naturland, PEFC or an equivalent standard. This declaration must be accompanied by the valid CoC certificate from the supplier of the wood that verifies that at least 70 % of the wood by mass is certified. In addition, delivery notes/invoices including a corresponding claim from the wood fibre producer must be submitted for the wood that was purchased to produce the sold wood fibres.

HORTICERT certification will be recognised as verification of compliance with this criterion if the applicant also submits verification that no stem wood was used and only wood of a low wood grade was used (see footnote 22) (Annex 2).

Alternatively, the applicant can also submit verification for all criteria²³ in the form of a certificate from an accredited environmental verifier²⁴.

3.2.5 Coconut products for horticultural applications

3.2.5.1 Compliance with minimum social standards

The certified product may only contain horticultural coconut products for which the applicant can verify that minimum social and employment standards were complied with during their production.

²³ No use of stem wood, compliance with the requirements according to the FSC, Naturland, PEFC or an equivalent standard including the criteria in Paragraph 3.2.3.2

²⁴ People or organisations who according to the German Environmental Audit Act from 04/09/2002 (BGBl. I p. 3490), last amended on 10/08/2021 (BGBl. I p. 3436), are permitted to work as an environmental verifier or environmental verification organisation in the area of agriculture and forestry or other environmental verifiers or environmental verification organisations from other member states of the European Union or from other states that are contracting parties to the Agreement on the European Economic Area according to Article 18 of the German Environmental Audit Act.

Compliance verification

The applicant shall verify their compliance with minimum social standards in the production of the coconut fibre products in accordance with SA 8000 or a comparable standard²⁵ (Annex 1). HORTICERT certification will be recognised as verification of compliance with this criterion.

3.2.5.2 Process water and waste water concept

In order to avoid any negative environmental impact due to the discharge of pollutants via waste water, the plants where the coconut products are produced must have concepts for the use of process water and the treatment of any waste water generated. The concepts should guarantee the sparing use of process water and the environmentally friendly disposal of waste water.

Compliance verification

The applicant shall verify in the form of a certificate from an independent body that minimum standards for the management of the process water and waste water were complied with during the processing of the fibres. This certificate must include a description of the monitoring parameters for the (cleaned) waste water and confirmation that any applicable legal regulations were complied with during the discharge of the waste water (Annex 1). HORTICERT certification will be recognised as verification of compliance with this criterion.

3.2.5.3 Quantitative limits

The proportion of coconut products in the product certified with the Blue Angel ecolabel must not exceed half of the total volume.

Compliance verification

The applicant shall submit the verifications for the composition of the product stated in Paragraphs 3.1.1 and 3.1.2 (Annex 1).

3.2.6 Other agricultural residues

Plant residues generated locally during the processing of agricultural produce may be used as a raw material (e.g. husks, shives, pomace, coffee grounds). A minimum requirement is the provision of verification that these residues are actually considered to be residues in accordance with the requirements defined in Paragraph 3.1.1.

In the case of any doubt, the applicant must provide verification that these materials are not an intentional product of the process from which they are sourced. For this purpose, the applicant can base this verification on e.g. the definition in the RSB standard that there is an inelastic relationship between supply and demand for the residue, i.e. no additional production is expected when the market value of the residue increases (RSB-STD-01-010 (Version 2.5)).

²⁵ The German Environment Agency will decide on whether a standard is comparable.

Compliance verification

The applicant shall declare (providing verification where necessary) that the material is a plant residue sourced from the processing of agricultural produce (Annex 1).

3.2.7 Biochar

3.2.7.1 Raw materials

Biomasses approved as raw materials for the production of biochar by pyrolysis according to the AgroOrganic standard from the European Biochar Certificate (EBC 2023), insofar as they are not classified as cultivated biomass (categories Ag-01, Ag-02, Ag-03), are permitted.²⁶ In addition, fermentation residues from Nawaro plants (category AD-01) are excluded from the scope of these Basic Award Criteria. If biomass that was produced for the purposes of fermentation is used as an input at the fermentation plant, it must not exceed a maximum limit of 20 % (by mass) of the total input material. In the case of industrial wood residues, only those qualities of wood that can no longer be used for the production of products requiring longer fibres, such as chipboards or wood fibres, may be used.

Compliance verification

The applicant shall submit a declaration from the supplier of the biochar to confirm which raw materials were used in the pyrolysis process and verify that they were of permissible qualities according to the EBC AgroOrganic standard (subject to the other additional requirements for industrial wood residues) (Annex 1).

3.2.7.2 Plant operation

The four requirements placed on the pyrolysis technology by the European Biochar Certificate (energy and carbon efficiency, separation and, where necessary, combustion of the synthetic gases, plant emissions) must be fulfilled in the operation of the plants (see EBC 2012-2023, Chapter 8).

Compliance verification

The applicant shall verify compliance with the requirements for the pyrolysis technology according to the EBC standard by submitting either an EBC certificate for the biochar or an assessment report from an accredited environmental verifier ²⁴ (Annex 1) (also see the verifications for Chapter 3.4).

3.2.8 Paludiculture

Paludi-biomass, which is used as a raw material for products certified with the ecolabel, must be from rewetted moors that are managed with the aim of conserving peat. This means that the water levels must be near to the ground surface throughout the year (BfN 2021). Based on the criteria from the BfN (2021), the following conditions must be fulfilled:

- no nitrogen or phosphate fertiliser may be used (nutrient-rich surface water may be added);

²⁶ Note: According to the DüMV, only chemically untreated wood may be used as a raw material for biochar and it must have a carbon content of at least 80 % carbon in the dry mass.

- plant protection agents may not be used;
- the soil is not turned or loosened; an exception applies when establishing or switching/renewing the types of cultivated biomass after receiving corresponding approval.
- other requirements placed on the harvesting and maintenance of the cultivated areas as part of the management of rewetted lowland moors according to the BfN (2021) must be taken into account; any nature conservation requirements as part of the management of rewetted highland moors must also be taken into account.

Compliance verification

The applicant shall submit verification of compliance with the requirements from the body carrying out the accompanying ecological research as part of a pilot project or from an accredited environmental verifier²⁴ (Annex 1).

3.2.9 Mineral raw materials

The applicant must ensure that the mineral raw materials are sourced from legal mining. This means that an environmental impact assessment according to European Directives 2011/92/EU and 2014/52/EU (EU EIA Directive), implemented in Germany in the German Environmental Impact Assessment Act (Gesetz über die Umweltverträglichkeitsprüfung –UVPG)²⁷ must have been carried out and a mining permit has been received from the relevant authorities responsible for the region. A rehabilitation plan that describes the aims for the rehabilitation of the quarry (during the mining activities and after they have ended) must have been produced. This plan must describe the final form of the land and the use of the soil after the mining activities have ended. In addition, it must provide a detailed description of the recultivation or renaturation programme and include a programme to monitor this work and evaluate the effectiveness of the measures.

The location of the mining area must be marked on a map. If the mining area is located next to a Natura 2000 area²⁸ or an equivalent conservation area outside of the EU²⁹ or is located in a conservation area, the conservation area must also be marked on the map.

The requirements in the regulation on invasive alien species (Regulation (EU) No 1143/2014), the Habitat Directive (Directive 92/43/EEC) and the Birds Directive (Directive 2009/147/EC) must be observed.

If the mining area is located in a Natura 2000 area²⁸, the mining activities must have been assessed and approved in accordance with Article 6 of Directive 92/43/EEC and they must take into account the corresponding guidelines issued by the European Commission (EC 2010 or EC 2019). If the mining area is located in a conservation area outside of the EU²⁹, any equivalent guidelines for the assessment and approval of the mining activities must have been taken into account. The respective verifications must be approved on a case-by-case basis by the German Environment Agency.

²⁷ If an official review determined that it was unnecessary to carry out a full environmental impact assessment, the results of this review must be submitted.

²⁸ Areas within the EU that are designated as specially protected areas according to Article 3 of Directive 92/43/EEC (Habitat Directive) and Article 4 of Directive 2009/147/EC (Birds Directive): <https://ec.europa.eu/environment/nature/natura2000/>; last accessed: 07/02/2023

²⁹ Areas outside of the EU that have been officially designated or recognised as potential areas of special conservation interest or which belong to the Emerald network according to the Bern Convention or which have been designated as a conservation area according to national regulations in the country of origin.

If a mineral material is sourced from various different mining areas, the criteria must be verified for all mining areas from which more than 10 % of the total amount of this material is sourced. Verification of compliance with the criteria must be provided for at least 80 % of the mineral material in total.

Compliance verification

The applicant shall submit the following documents for the mineral raw materials used in the product:

- *A certificate on the results of the environmental impact assessment*
- *Verification of the mining permit from the applicable authorities (e.g. a copy of the permit)*
- *A rehabilitation plan and map showing the mining area (including labelling of any neighbouring conservation areas if relevant)*
- *A declaration of compliance with relevant nature conservation regulations (Regulation (EU) No. 1143/2014, Regulation 92/43/EEC, Regulation 2009/147/EC)*

If the mining area is located in a Natura 2000 area, the applicant shall also submit verification in the form of the impact assessment in accordance with Article 6 of Directive 92/43/EEC and the subsequent approval from the responsible authority in accordance with the requirements in Article 6 of Directive 92/43/EEC and the corresponding guidelines from the European Commission (EC 2010, EC 2019). If the mining area is located in a conservation area outside of the EU, the applicant shall submit verification in the form of a special assessment and approval that is equivalent to the requirements in Article 6 of Directive 92/43/EEC. In both cases, the German Environment Agency will then approve these mining areas on a case-by-case basis (Annex 1).

3.3 Information about the production site, suppliers and transport distances

The applicant should provide information on the transportation costs (routes) associated with the supply structures.

Therefore, the applicant should provide the following information on the production site, the raw materials in the substrate and their sources:

- a) The production sites (growing media/composting plants) for the growing media to be certified with the Blue Angel ecolabel (Name and address).
- b) Type³⁰ of direct supplier and distance to the production site. If the direct supplier is not located in Germany, the distance to the relevant country must also be stated.
- c) Country of origin of the raw materials and the transport route from the direct supplier
 - ♦ If procured in Germany, the approximate distance from the source of the raw material to the supplier.
 - ♦ The country of origin of the raw material must be stated for imports.
 - ♦ If the horticultural coconut products are not delivered to the plant in a compressed form, the applicant must state where the decompression process is carried out.

³⁰ e.g. composting plant, sawmill, production company for coconut fibre textiles, plant for the further processing of agricultural products

Compliance verification

With respect to the sourcing of the raw materials, the applicant shall provide information on the types of production plant supplying the raw materials and the distance to these plants (Annex C).

In the event of a change to the source of supply or one of the production sites, the applicant must also notify RAL about these changes and enclose appropriate verifications for the new source of supply or production site with this notification.

3.4 Quality assurance

3.4.1 Test parameters

The following parameters must be regularly measured and reported for the ecolabel. The applicant must comply with the limits stated in Chapter 3.5 and Chapter 3.6. An overview of the test parameters, methods and limits can be found in Appendix D.

- For the growing media: heavy metals, polyaromatic hydrocarbons, microbiological criteria, germinable weed seeds, plant compatibility, salt content and pH value.
- For the relevant raw materials³¹ or the growing media: a stable nitrogen balance.
- For compost: rotting grade and macroscopic impurities.
- For biochar: molar H/C_{org} ratio and molar O/C_{org} ratio, organic carbon content.

3.4.2 Sampling and analysis framework

To ensure a systematic quality assurance process including third-party sampling and analysis, the applicant must comply with the following requirements.

[1] For the growing media:

- a) If the applicant participates in a quality assurance system for growing media, he/she must provide verification. If the quality assurance system includes regularly checking the quality of the raw materials, the additional verifications required in section [2] are not necessary for those raw materials that have already been verifiably checked in this context.
- b) If the applicant does not participate in a quality assurance system, he/she must verify that an equivalent quality assurance system has been established. For this purpose, he/she must provide information on the sampling and analysis framework, split into self and third-party sampling/analysis, and describe for each of the parameters³² the number of samples taken from each batch of growing media produced and the sampling method³³ used. The sampling method and analysis framework must comply with already recognised methods³⁴ and systems³⁵. The analyses as part of the third-party monitoring must be carried out in an accredited laboratory (see Paragraph 3.4.4).

[2] For the raw materials:

- a) Compost

³¹ Currently: wood fibres, bark humus, coconut products, compost

³² In addition to those parameters relevant for this ecolabel, the applicant should also describe the routines for determining the nutrient contents.

³³ e.g. production of representative mixed samples

³⁴ e.g. VDLUFA Volume II.2 1 Sampling

³⁵ e.g. RAL GZ 250, EU-UZ 048, at least two samples taken by third parties per year

The quality of the compost used in the product must be monitored in accordance with a recognised quality assurance system (quality assurance according to BGK, QLA or FBK)³⁶. Alternatively, the applicant can submit a certificate from an accredited environmental verifier²⁴ to certify that the quality of the compost has been monitored using an equivalent system of continuous quality assurance and that only permitted raw materials (see Paragraph 3.2.2) have been used.

b) Biochar

The quality of the biochar used in the product must be monitored in accordance with a recognised quality assurance system (especially the EBC AgroOrganic standard)³⁶. Alternatively, the applicant can submit a certificate from an accredited environmental verifier²⁴ to certify that the quality of the biochar has been monitored using an equivalent system of continuous quality assurance and that the requirements for the raw materials and plant operation (see Paragraph 3.2.7) have been observed.

c) Other

The applicant must provide information on his/her quality assurance system for other raw materials. The quality of the most relevant raw materials³¹ must be monitored in accordance with a recognised quality assurance system (quality assurance according to GGS or RHP)³⁶. Alternatively, the applicant can verify that an equivalent quality assurance system has been established. For this purpose, he/she must provide information on the sampling and analysis framework, split into self and third-party sampling/analysis, and describe for the tested parameters the number of samples taken from each batch of growing media produced and the sampling method used. The sampling method and analysis framework must comply with already recognised methods³⁴ and systems³⁷. The analyses as part of the third-party monitoring must be carried out in an accredited laboratory (see Paragraph 3.4.4).

3.4.3 Submitting the test results

The test results for the relevant parameters and for the nutrient content (N, P₂O₅, K₂O as declared for the DüMV) must be submitted to RAL once a year as average annual values including the standard deviation. The average annual values must comply with the requirements in the Basic Award Criteria for all parameters.

If the methods used to produce the test results are different from those defined in these Basic Award Criteria, the applicant must verify their equivalence. If the units differ, the applicant can convert them using the conversion factors.

In appropriate cases, verification of compliance with the limits for the entire growing media can also be calculated using corresponding measurement values for the input materials. These calculations must be correspondingly marked and justified.

In the event of any uncertainties, RAL is entitled to request that the product is tested in accordance with the methods defined for this ecolabel.

3.4.4 Accredited laboratories

The third-party monitoring of the parameters defined in Paragraphs 3.5 and 3.6 must be carried out in accredited laboratories. Reports produced by laboratories accredited according to DIN EN

³⁶ Other systems may also be recognised.

³⁷ e.g. RAL-GZ 250, RHP

ISO/IEC 17025 "general requirements for the competence of testing and calibration laboratories" will be accepted.

The results of tests carried out as part of other certification processes such as EU-UZ 048 "Growing media and soil improvers", AT-UZ 32 "Peat-free growing media, soil additives, fertilizers and composts", RAL-GZ 250 "Growing Media for Plants", RAL-GZ 251 "Compost" or RAL-GZ 245 "Fermentation products" will be accepted as verification insofar as they comply with the defined methods for this ecolabel or the applicant can prove their equivalence. Test reports from laboratories whose competence has been verified by VDLUFA-QLA GmbH³⁸ and/or through notification by the federal states in accordance with the Sewage Sludge Ordinance (AbfKlärV) or German Biowaste Ordinance (BioAbfV) will also be accepted.³⁹

Compliance verification

If the quality is checked via participation in an established quality assurance system, the applicant shall enclose with the application the relevant proofs of participation/certificates and the latest results of the third-party monitoring (the results must not be more than 6 months old). In subsequent years, the applicant shall submit the results of the third-party monitoring each year as average annual values including the standard deviation as well as confirmation⁴⁰ that quality assured raw materials are still being used and quality assured growing media are still being produced (Annex 1). The individual results and the results of the self-monitoring must be submitted to RAL on request.

If the monitoring of the growing media and/or the relevant raw materials stated in [2] c) is carried out as part of an equivalent quality assurance system, the applicant shall firstly describe the quality assurance system that has been established and then demonstrate that it uses recognised methods and systems as stated in the requirements. For composts and biochar, the applicant shall submit a certificate from an accredited environmental verifier²⁴ to confirm that a quality assurance system has been established as described above and it complies with the requirements with respect to the raw materials and plant operation⁴¹.

The applicant shall submit the latest results of the third-party monitoring in an accredited laboratory (the results must not be more than 6 months old). In subsequent years, the applicant shall submit the results of the third-party monitoring each year as average annual values including the standard deviation. The individual results and the results of the self-monitoring must be submitted to RAL on request.

³⁸ List of laboratories from the Quality Assurance Association for Agricultural Waste Utilization (Gesellschaft für Qualitätssicherung Landbauliche Abfallverwertung mbH) <http://www.qia.de/>; last accessed: 03/02/2023

³⁹ List of laboratories from the Research System on Measuring Bodies and Authorised Experts (ReSyMeSa – Recherchesystem Messstellen und Sachverständige) <https://www.resymesa.de/ReSyMeSa/Allgemein>; last accessed: 03/02/2023

⁴⁰ Proof of participation / certificate

⁴¹ Only for biochar, see Paragraph 3.2.7.2

3.5 Limit values

3.5.1 Heavy metals

Organic growing media must comply with the limits listed in Table 1 for heavy metals in the solid following aqua regia digestion.

Table 1: Maximum permissible content of heavy metals in the product

Heavy metal	mg/kg DM
Cadmium (Cd)	1
Total chromium (Cr)	70
Copper (Cu)	70
Mercury (Hg)	0.4
Nickel (Ni)	35
Lead (Pb)	45
Zinc (Zn)	200
Arsenic (As)	10
Thallium (Tl)	1

Compliance verification

The applicant shall confirm compliance with the requirement. The total heavy metal content shall be stated. Suitable methods for verifying compliance are e.g. DIN EN 13650 (extraction using aqua regia) in combination with DIN EN ISO 11885 (ICP-OES), DIN ISO 11047 (AAS) and/or DIN EN ISO 17294 (ICP-MS).

The VDLUFA methods for "Secondary raw material fertilizers, growing media and soil conditioners" (Sekundärrohstoffdünger, Kultursubstrate und Bodenhilfsstoffe) No. 5.1.1.1 (digestion with aqua regia) in combination with No. 5.1.2. to 5.3.3 (heavy metals in different analysis solutions) are considered to be equivalent test methods (Annex 1).

3.5.2 Polyaromatic hydrocarbons

The maximum value for the total sum of the most important 16 polycyclic aromatic hydrocarbons (PAH16) in the product is 4 mg/kg DM.⁴²

Compliance verification

Verification of the PAH16 value must be carried out in accordance with DIN EN 17503. VDLUFA method No. 6.4.1 "Determination of polycyclic aromatic hydrocarbons (PAH) in sewage sludge and composts" (Bestimmung von polycyclischen aromatischen Kohlenwasserstoffen (PAK) in Klärschlämmen und Komposten) is considered to be an equivalent method (Annex 1).

⁴² PAH16 is the sum of naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, dibenzo[a,h]anthracene and benzo[ghi]perylene.

3.5.3 Other organic pollutants

3.5.3.1 Dioxins, furans, dioxin-like polychlorinated biphenyls and perfluorinated and polyfluoroalkyl substances

The product must comply with the limits in Table 2 for the sum of dioxins and furans (PCDD/F)⁴³ and dioxin-like polychlorinated biphenyls (dl-PCB) as well as for perfluorinated and polyfluoroalkyl substances (PFAS)⁴⁴.

Table 2: Limits for organic pollutants

Parameter	Limit value
PCDD/F & dl-PCB	20 (8) ⁴⁵ ng/kg DM (WHO-TEQ 2005 ⁴⁶)
PFAS ⁴⁴	0.01 mg/kg DM

This parameter must only be determined once at the time of application. In the case of any doubt, RAL can request the completion of further control measurements (also for other PFAS if necessary).

If the source of supply (source of the raw materials, in the case of PCDD/F & dl-PCB in biochar also the method) changes, the new values must be determined and submitted.

Compliance verification

The applicant shall submit the test results carried out according to the stated methods (or a verifiably equivalent method) (Annex 1) for the following parameters:

- PCDD/F & dl-PCB with WHO-TEQ 2005 according to DIN EN 16190
- PFAS (total PFOA and PFOS) according to DIN 38414-14; or DIN 38407-42

3.5.3.2 Testing for non-dioxin-like PCBs in biochar

The biochar must also be tested once for the presence of non-dioxin-like PCBs⁴⁷. Alternatively, the applicant can verify that the production plant from which the biochar is sourced carried out this test once on the first batch produced by the plant (for a comparable raw material). The applicant must submit the test results. A limit value of 0.2 mg/kg DM according to the EBC (2012-2023) applies.

Compliance verification

The applicant shall submit the test results for ndl-PCB carried out according to DIN EN 17322 or DIN ISO 10382 (Annex 1).

⁴³ Polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF)

⁴⁴ According to the main substances stated in the DüMV (currently the sum of perfluorooctanoic acid (PFOA) and perfluorooctane sulphate (PFOS))

⁴⁵ Value in brackets: An exception applies to grassland used to produce animal feed and agricultural fields used to produce animal feed with non-turning cultivation according to the DüMV.

⁴⁶ Toxic equivalency factors from the World Health Organisation for dioxins and dioxin-like compounds, concentrations of individual PCDD/F based on seveso dioxin as a reference substance; version from 2005: <https://doi.org/10.1093/toxsci/kfl055>; last accessed: 22/07/2023

⁴⁷ PCB congeners 28, 52, 101, 138, 153 and 180

3.5.4 Microbiological criteria

The limits for the presence of pathogens in organic growing media are defined in Table 3.

Table 3: Limits for the microbiological criteria

Parameter	Limit value
<i>Salmonella spp.</i>	not found or 0 KBE in 25 g or 25 ml

CFU: Colony forming units (also described as the bacterial count)

Compliance verification

The applicant shall submit the test results for salmonella spp. carried out according to EN ISO 6579 or CEN/TR 15215 (Annex 1).

3.6 Fitness for use

3.6.1 Rotting grade

Only those composts with rotting grade V may be added as a raw material. The maximum temperature measured in the self-heating test may not exceed 30°C. This corresponds to a respiratory activity over four days (AT4 value) of ≤ 20 mg O₂/g DM.

Compliance verification

The rotting grade shall be determined in a self-heating test carried out according to the method defined by the Federal Compost Association (BGK 2006). The method described in DIN EN 16087-2 is considered to be an equivalent method. The results from alternative test methods used to determine the rotting grade via the respiratory activity over four days (AT4 value according to DepV) must be categorised according to Table IV. A 1 of the BGK method (Annex 1).

3.6.2 Stable nitrogen balance

In order to ensure that plants are well supplied with the main nutrient nitrogen, the organic raw materials added to the product must not negatively impact the nitrogen dynamics of the organic growing media with respect to nitrogen immobilisation. This is considered to be the case if the decrease in mineral nitrogen compounds (sum of NH₄-N and NO₃-N) in the incubation test does not exceed 100 mg/L of organic growing media (100 % by volume) ($\Delta N \leq 100$ mg N /L).⁴⁸ Alternatively, the applicant can verify that the relevant raw material (currently: wood fibres, bark humus, coconut products, compost) complies with the stability criteria for the relevant material defined in RAL GZ 250 or RAL GZ 251.

⁴⁸ Note: The tests methods to verify a stable nitrogen balance were developed for raw materials with a high C/N ratio and there is currently little experience with the testing of finished (and possibly fertilised) growing media. Therefore, it may be necessary to adapt the test methods and criterion once more experience and data has been gathered from the testing of the finished growing media. The release of nitrogen (nitrogen mineralisation) is not included in the evaluation.

Compliance verification

The applicant shall verify that the product has a stable nitrogen balance (Annex 1) by using one of the following three options: a) a test of the growing media according to VDLUFA A 13.5.1 "Determining the stability of the nitrogen balance of organic materials" (Bestimmung der Stabilität des Stickstoffhaushaltes organischer Materialien) to verify that the nitrogen dynamics (nitrogen immobilisation) are not seriously impacted by the growing media ($\Delta N \leq 100 \text{ mg N /L}$).

b) If the applicant uses quality assured raw materials in the production of the product or has test reports according to VDLUFA A 13.5.1 for the relevant raw materials (currently: wood fibres, bark humus, coconut products, compost) that verify compliance with the criteria for a stable nitrogen balance according to RAL-GZ 250 or RAL-GZ 251, this requirement is also considered to be fulfilled.

c) Alternatively, the applicant can supplement the verification of the fitness for use of the organic growing media with an extension to the germination and growth test with Chinese cabbage (see Paragraph 3.6.6) using additional approaches without the use of fertiliser or any subsequent addition of fertiliser. If there is no reduction in the fresh plant mass in the approaches without fertiliser, the nitrogen balance can be considered to be stable.

3.6.3 Macroscopic impurities

As a minimum requirement, compost used as a raw material must comply with the limits for foreign materials⁴⁹ and stones according to the DüMV. Substrate composts must also comply with the strict limits on stones defined in RAL-GZ 251. In order to ensure a good optical quality with respect to plastic film impurities, the compost must also comply with the limits on the "Level of impurities" (area sum of foreign matter, FSI) defined in RAL-GZ 251. The applicable limits for microscopic impurities are summarised in Table 4.

Table 4: Limits for macroscopic impurities

Parameters ⁵⁰	Sieve size	Limit value
Deformable plastics > 1 mm	1 mm	0.1 % by mass DM
Other foreign matter ⁵¹ > 1 mm	1 mm	0.4 % by mass DM
Total foreign matter > 1 mm	1 mm	0.5 % by mass DM
Stones > 10 mm	10 mm	0.5 % by mass DM
Stones 2-10 mm	2 or 10 mm	5 % by mass DM
Level of impurities (FSI)	-	10 cm ² / L

For other raw materials, it is assumed that any contamination with these foreign materials is not relevant. RAL may request the completion of additional tests on a case-by-case basis.

Compliance verification

The applicant shall submit the test results for tests carried out (Annex 1) according to the stated methods (or a verifiably equivalent method) for the following parameters:

- Determining the foreign materials according to VDLUFA Volume II.2, No. 9.4 "Determining the proportion of the unavoidable foreign materials glass, plastic and stones" (Bestimmung

⁴⁹ Waste paper, cardboard, glass, metal, plastic

⁵⁰ Proportion of the dry mass of the compost after 1 mm sieving of the compost.

⁵¹ Waste paper, cardboard, glass, metal and non-deformable plastics

des Anteils unvermeidbarer Fremdstoffe Glas, Kunststoff, Steine) or DIN CEN/TS 16202:2013-12, DIN SPEC 91277:2013-12 for 1 mm sieving (paper, glass, plastic, metal) and 2-10 mm sieving and > 10 mm sieving (stones)

- Determination of the FSI according to the method published by the BGK (4th supplementary delivery 12/2015: Chapter II. C 3, BGK 2005)

3.6.4 Quality parameters for biochar

Based on the EBC (2012-2023), the applicant must determine the molar H/C_{org} ratio and molar O⁵²/C_{org} ratio to verify the quality of the pyrolysis process and the quality of the produced biochar.

The limits defined in the EBC (2012-2023) must be observed:

- Molar H/C_{org} ratio < 0.7
- Molar O/C_{org} ratio < 0.4

The organic carbon content (C_{org}) of the biochar must be declared.

Compliance verification

For the biochar used in the product, the applicant shall verify compliance with the requirements for the molar H/C_{org} and O/C_{org} ratios according to the EBC standard by submitting either an EBC certificate for the biochar or a corresponding test certificate for the relevant batch (including the batch number) and stating the organic carbon content. The elementary analysis must follow the procedure described in the EBC (2012-2023): Sample preparation according to DIN 51701-3, analysis of the C, H and N contents according to DIN 51732, calculation of the organic carbon content following the additional determination of the proportion of carbonate in the total carbon (DIN 51726), calculation of the oxygen content according to DIN 51733, following the additional determination of the ash and sulphur contents (DIN 51719 and DIN 51724-3). Methodological deviations may be recognised by RAL on a case-by-case basis if they are justified and their equivalence is verified (Annex 1).

3.6.5 Germinable weed seeds and viable propagation material

The content of germinable weed seeds and viable propagation material in the organic growing media may not exceed two units per litre.

Compliance verification

The applicant shall submit a test report for one of the test methods (Annex 1) stated in the technical specifications CEN/TS 16201. VDLUFA method 13.5.2 "Detection of germinable seed material and plants capable of producing shoots in horticultural substrates and substrate source materials" (Nachweis keimfähigen Samen und austriebfähigen Pflanzenteilen in gärtnerischen Substraten und Substratausgangsstoffen) (Method book I, 4th supplement delivery 2004) and the methods described in Section 4.3.2 of BioabfV are recognised as equivalent methods.

⁵² Calculating the oxygen content as defined in the EBC (2012-2023) from the C, H, N, S and ash contents will be accepted.

3.6.6 Plant compatibility

Organic growing media may not negatively influence the germination and growth of plants. A germination and growth test with Chinese cabbage (*Brassica rapa subsp. Pekinensis*) must be carried out for this purpose.

Compliance verification

The applicant shall submit a test report according to VDLUFA A 10.2.1 "Seedling test for the detection of substances harmful to plants in horticultural substrates and substrate source materials" (Keimpflanzentest zum Nachweis von pflanzenschädigenden Stoffen in Kultursubstraten und Substratausgangsstoffen) (Method book I, 7th supplement delivery 2016) to verify that the growing media is not harmful to plants (Annex 1).

Note:

The test can be expanded to also test the fitness for use of the growing media without fertiliser in other approaches.

3.6.7 Salt content

The product must comply with the following limits (Table 5).

Table 5: Limits for the salt content

Parameter	Limit value
Sodium (Na)	≤ 150 mg/ L
Chloride (Cl)	≤ 300 mg/ L
Salt content as KCI equivalent	≤ 3 g/ L

All values are based on a volume of 1 litre of growing media in a field damp state.

Compliance verification

The applicant shall document the salt content based on sodium and chloride measurements in a 1:10 eluate. It must be determined according to VDLUFA Volume I A 13.4.3 "Determination of water-soluble sodium and chloride in substrates and composts" (Bestimmung von wasserlöslichem Natrium und Chlorid in Substraten und Komposten). The salt content as a KCI equivalent must be determined according to VDLUFA Volume I A 13.4.1 "Determination of salinity in horticultural soils, grounds and substrates in water extract" (Bestimmung des Salzgehaltes in Böden, gärtnerischen Erden und Substraten), in which the salt content as a KCI equivalent is determined based on the conductivity (Annex 1).

Note:

If there is a suspicion that a high level of conductivity is caused by CaSO₄ (gypsum), the conductivity can also be determined in a saturated gypsum solution according to VDLUFA 13.4.2 "Determining the salt content in horticultural soils, garden soil and substrates in an extract with a saturated gypsum solution" (Bestimmung des Salzgehaltes in gartenbaulich genutzten Böden, gärtnerischen Erden und Substraten im Auszug mit gesättigter Gipslösung).

3.6.8 pH value

The pH value must be between pH 5.0 and pH 7.0. A pH value of between pH 4.0 and pH 5.0 is also permitted in the case of special soils designed for lime-sensitive plants. In this case, the suitability of these special soils for this purpose must be stated on the packaging/shipping documents.

Compliance verification

The applicant shall document the pH value by determining it in a 0.01 m CaCl₂ suspension (VDLUFA I A 5.1.1) and, if relevant, shall verify that the limited suitability of any acidic special soils is stated on the packaging/shipping documents (Annex 1).

3.7 Provision of information

The labelling obligations for growing media in the DüMV⁵³ must be observed. The applicant must also state the dry mass of the growing media and the C/N ratio. In addition, it should be possible to clearly trace the source of the growing media (e.g. batch number).

In terms of information about the proper use and storage of the product, the most sparing use of the product should be encouraged and the consumer should be informed that this will also help to protect the environment.⁵⁴ In the case of special soils, information should be provided, if relevant, on the different applications for the product in order to avoid the overlapping use of special products and/or enable any subsequent uses.

In order to avoid overloading the packaging/shipping documents with information, more detailed information should be made available via a link/QR code.

In addition, information on the professional disposal of the packaging (or for reusable packaging: return options) should be provided on the packaging.

The Blue Angel logo depicted on the product must be accompanied by the explanatory box for the Basic Award Criteria for organic growing media and potting soils. In accordance with the Basic Award Criteria for packaging materials, the Blue Angel logo for packaging (DE-UZ 30a) may not be displayed on the product.

Compliance verification

The applicant shall enclose high resolution photos of the packaging (from all sides) and shipping documents (Annex 1).

3.8 Requirements for the packaging

Sacks that comply with the criteria for the Blue Angel for packaging materials (DE-UZ 30a) are permitted. Reusable containers, with a disposable inlet if necessary, may be used if it can be demonstrated that the process for returning them via a reusable container system is easy and practical for consumers and that the inlet uses at least 70 % less material in comparison to disposable packaging. The inlet must comply with the criteria in the Blue Angel for packaging

⁵³ Especially DüMV §6 and Annex 2, Table 10: https://www.gesetze-im-internet.de/d_mv_2012/; last accessed: 26/07/2023

⁵⁴ For example, information can be provided on how to extend the life of the growing media, e.g. instructions on using fertiliser, information on protecting the growing media with mulch or instructions on future storage of the product.

materials (DE-UZ 30a). It must be possible to sort the plastic packaging using infrared technology.

There are no further requirements for the sale of the growing media in reusable big bags or in loose batches.

Compliance verification

The applicant shall state which type of packing is used (sacks, big bags (reusable), loose batches). The applicant shall submit verification of compliance with the criteria in the Blue Angel for packaging materials (DE-UZ 30a) and confirm that the plastic packaging can be sorted using infrared technology. In the case of reusable packaging, the applicant must ensure that the process for returning the packaging is easy and practical (Annex 1).

3.9 Overview of possible future requirements

The following points will be taken into account, where possible, in future revisions of these Basic Award Criteria:

- Validation of a definition for residual organic materials that will enable the potential use of waste and close the carbon cycle
- A review of the approval of cultivated biomass and topsoil from the renaturation of degraded moors in order to produce growing media (possibly subject to certain preconditions)
- A review of the availability and competing uses for peat substitutes, including an in-depth analysis of the energy demands (and other environmental impacts where relevant) of the production paths
- A review of the quantitative limits on horticultural coconut products, taking into account the experiences and data from HORTICERT and the availability of locally produced peat substitutes
- A review of the requirement for macroscopic impurities and the option of adding a criterion for microplastic
- A review of the requirement for nitrogen stability (limit and method)
- A review of the requirement for PFAS (main substances, limit, method)

4 Applicants and parties involved

Manufacturers or distributors of 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 Environment Agency) which after the signing of the contract receives all data and documents submitted in application 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 31 December 2028.

They shall be extended by periods of one year each, unless terminated in writing by 31 March 2028 or 31 March 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 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 organizations.

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 marketing organization.

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Anhang A Quoted laws and standards, literature

This list is arranged alphabetically. More specific citations will be added at a later date.

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- DIN EN 13039 (2012-01): Soil improvers and growing media - Determination of organic matter content and ash
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- DIN EN 16087-2 (2012-01): Soil improvers and growing media - Determination of the aerobic biological activity - Part 2: Self heating test for compost
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Anhang B Assignment of hazard categories and H Phrases

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 categories	Hazard statements	
	H Phrases	Wording
Acute toxicity substances		
Acute Tox. 1 Acute Tox. 2	H300	Fatal if swallowed.
Acute Tox. 3	H301	Toxic if swallowed.
Acute Tox. 1 Acute Tox. 2	H310	Fatal in contact with skin.
Acute Tox. 3	H311	Toxic in contact with skin.
Acute Tox. 1 Acute Tox. 2	H330	Fatal if inhaled.
Acute Tox. 3	H331	Toxic if inhaled.
Sensitizing substances		
Resp. Sens. 1 (A/B)	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin Sens. 1 (A/B)	H317	May cause an allergic skin reaction
Germ cell mutagenic substances		
Muta. 1A Muta. 1B	H340	May cause genetic defects.
Muta 2	H341	Suspected of causing genetic defects.
Carcinogenic substances		
Carc. 1A Carc. 1B	H350	May cause cancer.
Carc. 1A Carc. 1B	H350i	May cause cancer if inhaled.
Carc. 2	H351	Suspected of causing cancer.
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.
Repr. 2	H361f	Suspected of damaging fertility.

CLP Regulation (EC) No. 1272/2008		
Hazard categories	Hazard statements	
	H Phrases	Wording
Repr. 2	H361d	Suspected of damaging the unborn child.
Repr. 2	H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
Lact.	H362	May cause harm to breast fed children.
Substances with specific target organ toxicity		
STOT SE 1	H370	Causes damage to organs.
STOT SE 2	H371	May cause damage to organs.
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.
STOT RE 2	H373	May cause damage to organs through prolonged or repeated exposure.
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.
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

CLP Regulation (EC) No. 1272/2008		
Hazard categories	Hazard statements	
	H Phrases	Wording
Water-hazardous substances		
Aquatic Acute 1	H400	Very toxic to aquatic life
Aquatic Chronic 1	H410	Very toxic to aquatic life with long-lasting effects
Aquatic Chronic 2	H411	Toxic to aquatic life with long-lasting effects

CLP Regulation (EC) No. 1272/2008		
Hazard categories	Hazard statements	
	H Phrases	Wording
Aquatic Chronic 3	H412	Harmful to aquatic life with long lasting effects ⁵⁵
Aquatic Chronic 4	H413	May cause long lasting harmful effects to aquatic life

⁵⁵ For mineral micronutrient fertilisers classified in the category Aquatic Chronic 3, the applicant can submit a request to RAL for approval of the substance as an exception if the composition complies with the DüMV. The evaluation will be carried out on a case-by-case basis in agreement with the German Environment Agency.

Anhang C Information about the production site, suppliers and transport distances

Information on production sites

Name:

Address:

Information on the suppliers and transport distances (with example information for illustration purposes)

Raw material	Direct supplier		Origin of the raw material	Comment
	Type of supplier (stating the country if relevant)	Delivery distance to the production site (route, km)	Source in Germany: Distance to the supplier: Imports: Information on the country of origin	
<i>Sawdust</i>	<i>Sawmill</i>	<i>50 km</i>	<i>50 km</i>	-
<i>Coconut pulp</i>	<i>Processing plant (Netherlands)</i>	<i>300 km</i>	<i>India</i>	<i>Decompression in Rotterdam</i>

Anhang D Overview of the test parameters

The following table provides an overview of the test parameters that are explicitly required for the ecolabel and their limit values as well as information on the verification times (point in time and, if relevant, frequency of submission). All verifications must be submitted at the time of application and must not be more than six months old at the time of application. The limits apply to the stated methods and any equivalent methods. Please refer to Paragraph 3.4 and any other relevant paragraphs of the Basic Award Criteria for detailed information on the relevant requirements.

Chapter	Parameter		Limit value	Unit	Methods	Verification times	Components		
							Organic growing media	Com-post	Bio-char
3.1.4	Organic substance		≥ 20	%	Loss on ignition (DIN EN 13039; DIN EN 15935; DIN 18128; VDLUFA I A 15.2)		X		
3.5.1	Heavy metals	Cadmium (Cd)	1	mg/kg DM	Aqua regia digestion (DIN EN 13650 in combination with DIN EN ISO 11885 (ICP-OES), DIN ISO 11047 (AAS) and/or DIN EN ISO 17294 (ICP-MS); VDLUFA II 5.1.1.1. in combination with VDLUFA II 5.1.2 to 5.3.3)	Continuous monitoring ⁵⁶ and submission of annual verification to RAL	X		
		Chromium (Cr)	70						
		Copper (Cu)	70						
		Mercury (Hg)	0.4						
		Nickel (Ni)	35						
		Lead (Pb)	45						
		Zinc (Zn)	200						
		Arsenic (As)	10						
		Thallium (Tl)	1						
3.5.2	Polyaromatic hydrocarbons	PAH16	4	mg/kg DM	DIN EN 17503; VDLUFA II 6.4.1	Continuous monitoring ⁵⁶ and submission of annual verification to RAL	X		

⁵⁶ The sampling intervals vary depending on the parameter as part of a recognised quality assurance system or a self-defined self and third-party monitoring cycle that must be based on recognised systems (see Paragraph 3.4).

Chapter	Parameter		Limit value	Unit	Methods	Verification times	Components		
							Organic growing media	Com-post	Bio-char
3.5.3	Other organic pollutants	Polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) as well as dioxin-like polychlorinated biphenyls (dl-PCB)	20 (8)	ng/kg DM	DIN EN 16190	RAL may request control measurements in cases of doubt; if the source of supply for a raw material changes (also if the PCDD/F method for biochar changes)	X		
		PFAS (sum of PFOA and PFOS)	0.01	mg/kg DM	DIN 38414-14; or DIN 38407-42		X		
		Non-dioxin-like polychlorinated biphenyls (ndl-PCB)	0.2	mg/kg DM	DIN EN 17322 or DIN ISO 10382		if the source of supply or method changes		
3.5.4	Microbiological criteria	Salmonella spp.	0	CFU/25 g (CFU/25 ml)	EN ISO 6579; CEN/TR 15215	Continuous monitoring ⁵⁶ and submission of annual verification to RAL	X		
3.6.1	Rotting grade		V		Self-heating test (BGK, 2006, DIN-EN 16087-2); oxygen uptake rate (categorisation of the AT4 value according to DepV via IV. A 1 BGK method)	Continuous monitoring ⁵⁶ and submission of annual verification to RAL		X	

Chapter	Parameter		Limit value	Unit	Methods	Verification times	Components		
							Organic growing media	Com-post	Bio-char
3.6.2	Stable nitrogen balance	Incubation test	$\Delta N \leq 100$	mg N/L based on the finished growing media	VDLUFA A 13.5.1 Determination of the stability of the nitrogen balance of the organic materials OR quality assurance of the raw material OR according to 3.6.6	Continuous monitoring ⁵⁶ and submission of annual verification to RAL	X (or raw material in the substrate)		
3.6.3	Macroscopic impurities	Deformable plastics	0.1	% by mass DM	DIN CEN/TS 16202; DIN SPEC 91277; VDLUFA II 2 9.4	Continuous monitoring ⁵⁶ and submission of annual verification to RAL		X	
		Other foreign matter	0.4	% by mass DM				X	
		Total foreign matter	0.5	% by mass DM				X	
		Stones > 10 mm	0.5	% by mass DM				X	
		Stones 2-10 mm	5	% by mass DM				X	
		Level of impurities	10	cm ² /L FM	Area sum of foreign matter (4th supplement delivery 12/2015: Chapter II. C 3, BGK 2005)			X	
Fehler! Verweisquelle konnte nicht gefunden werden.	Quality parameters for biochar	Molar H/C _{Org} ratio	< 0.7		Sample preparation according to DIN 51701-3, analysis according to DIN 51732, calculation according to DIN 51726, calculation of the oxygen content according to DIN 51733, additional determination of the ash and sulphur contents (DIN 51719 and DIN 51724-3).	Continuous monitoring ⁵⁶ and submission of annual verification to RAL			X
		Molar O/C _{Org} ratio	< 0.4						X
		C _{Org}							
3.6.5	Germinable weed seeds and		2	Units / L	CEN/TS 16201; VDLUFA I A 13.5.2; BioabfV Section 4.3.2	Continuous monitoring ⁵⁶ and submission of	X		

Chapter	Parameter	Limit value	Unit	Methods	Verification times	Components			
						Organic growing media	Compost	Biochar	
	viable propagation material				annual verification to RAL				
3.6.6	Plant compatibility			Germination test VDLUFA I A 10.2.1	Continuous monitoring ⁵⁶ and submission of annual verification to RAL	X			
3.6.7	Salt content	Sodium (Na)	150	mg/L FM	VDLUFA I A 13.4.3	Continuous monitoring ⁵⁶ and submission of annual verification to RAL	X		
		Chloride (Cl)	300	mg/L FM			X		
		Salt content (KCl equivalent)	3	g/L FM	VDLUFA I A 13.4.1	Continuous monitoring ⁵⁶ and submission of annual verification to RAL	X		
3.6.8	pH value		5.0 ⁵⁷ - 7.0	VDLUFA I A 5.1.1	Continuous monitoring ⁵⁶ and submission of annual verification to RAL	X			

⁵⁷ A pH value of between pH 4.0 and pH 5.0 is also permitted in the case of special soils designed for lime-sensitive plants.