natureplus e.V.

Guideline 0107

Blown-In and Loose-Fill Insulation

Version: Oct. 23, 2026
for the awardance of the eco-label

Introduction

The International Association for Sustainable Building and Living - natureplus association - pursues the goal of promoting sustainable building products and increasing their popularity and use. To this end, sustainability criteria for building products are defined and verified as part of regular conformity assessments at the applicant's premises.

Three comprehensive sustainability definitions are created to achieve a holistic understanding of quality.

CLIMATE PROTECTION

The climate crisis is worsening, and the consequences are becoming increasingly visible. The construction sector is one of the largest emitters, accounting for around 40% [1] of global greenhouse gas emissions. Energy-intensive manufacturing processes, long transport routes and short renovation cycles are often still characteristic of the status quo.

The natureplus certification requires manufacturers to meet limit values on CO2 emissions and primary energy consumption.

[1] UNEP, 2020, 2020 Global Status Report for Buildings and Construction, p. 4.

HEALTHY LIVING

In Western societies, we spend about 90% [2] of our lives in buildings. Pollutants emitted by building materials can accumulate in the indoor air we breathe daily, posing unnecessary health risks to occupants. The accumulation of chemical pollutants from building materials in household dust is also a cause for concern.

The natureplus certification ensures that hazardous input materials are avoided or used in quantities that are harmless to health. Emissions from building products are strictly regulated and regularly monitored.

[2] Umweltbundesamt, o. D., Ausschuss für Innenraumrichtwerte (AIR)

CONSERVATION OF RESOURCES

All construction activities have an impact on nature and the environment, with the consumption of finite resources remaining unacceptably high. The production of building materials in Germany consumes about 60% of our resources, and as much as 90% if only mineral raw materials are considered. At the same time, the construction sector is responsible for 50% of the waste generated. [3]

The natureplus certification sets out requirements for increased transparency in the supply chain, respect for human rights and the environment, and the responsible use of resources throughout the life cycle of a building product.
Sustainable materials should also be durable, reusable, or recyclable.

[3] VDI ZRE, 2019, Ressourceneffizienz im Bauwesen – Von der Planung bis zum Bauwerk, p. 5.

Notes on this product guideline:

The eco-label, the certification programme including all associated documents is the property of the non-profit natureplus® environmental organisation. The Association and its specially appointed Criteria Commission are therefore responsible for the further development of the requirements.

The label is awarded by the European cooperative natureplus Institute SCE mbH.

In the event of textual discrepancies between different language versions of a guideline, the Criteria Commission's Task Force will determine the valid wording. The affected language versions will be amended to reflect the valid wording.

In the event of conflict between the basic guidelines (50XX) and this product guideline, the product award guideline shall prevail.

For questions, criticism and suggestions, please contact:

International Association for Sustainable Building and Living - natureplus association
Hauptstr. 24, 69151 Neckargemünd, Germany
criteria@natureplus.org
+49 (0)6223 866 017 0

1 Application Areas

The following award criteria contain requirements for the natureplus®-ecolabel.

The guideline applies to blown-in and loose fill insulation materials based on secondary raw materials.

The permissible sources of raw materials are defined in Section 2.2.

The guidelines apply exclusively to the products mentioned.

This guideline came into force on 1 July 2026 following a resolution by the Criteria Commission and the Executive Board.

This guideline combines the following guidelines and consequently repeals them:

- RL0105-Blow-in and bulk wood fiber insulation materials
- RL0107 – Blown-in insulation made from cellulose
- RL0108-Blown-in and bulk insulation materials from wood chips and shavings
- RL0111-Blow-in insulation materials from straw
- RL0112-Blown-in and loose-fill insulation materials from rye granulate
- RL0401-Natural stone blow-in and fill insulation materials

Products that have already been certified in accordance with the discontinued guidelines remain valid until the end of the licence period and must continue to meet the requirements of the relevant guideline.

2 Award Criteria

The prerequisite for a product to be awarded the natureplus® quality label in accordance with these guidelines is compliance with the following award guidelines:

- GL5001 Chemicals Directive
- GL5002 Origin of Wood and Wood Production
- GL5004 Transparency and Social Responsibility
- GL5010 Low-emission building products
- GL5020 Climate compatibility and energy efficiency

2.1 Functional Suitability

The product must fulfil the requirements for functional suitability by having a national or European technical approval or by following a harmonised standard.

The applicant shall meet this requirement by submitting one of the following documents:

- a valid European Technical Assessment (ETA)
- a declaration of performance and conformity according to a European harmonised technical specification (e.g. standard)
- a valid national technical approval (e.g. in Germany a general technical approval - abZ, in Austria a technical approval - BTZ)
- a national declaration of performance and conformity to a national technical specification (e.g. standard)

The applicant must prove resistance to mould infestation by means of a test report in accordance with the standard applicable to the product.

2.2 Composition, Forbidden Substances, Substance Restrictions

The product must consist of at least 85 M% in the air-dry state of secondary raw materials.

Permissible secondary raw material sources are:

1. Raw materials that occur as a by-product or residual material in production processes, e.g. agricultural by-products, wood and forestry residues (round timber that cannot be sawn/industrial timber) or textile offcuts from the textile industry.
2. Re-use products, e.g. fibres from blown-in insulation materials that have been recovered by type at the end of their life cycle and can be reused for the same purpose.
3. Recycled material from general waste streams, such as waste paper or waste glass, as well as from construction and demolition waste, e.g. processed insulation mats, which are then available as secondary raw materials.

The use of plastic-based fibers is excluded.

Only mineral additives are permitted as flame retardants.

The use of boron compounds as flame retardants or as protectant against microbial infestation is prohibited.

For products already certified that contain boron compounds, a transition period of three years applies from the date of publication of this guideline to allow for a switch to permissible technical alternatives.

Transitional period for boron compounds until 1 July 2029.

The use of halogen-organic compounds is prohibited.

The use of biocides is not permitted. This does not apply to mineral raw materials with a biocidal effect that meet the requirements of the Chemicals Directive RL5001. The ecological and human toxicological safety and the additional technical benefits of these components must be demonstrated. Biocides in the context of this directive are products and substances that fall under the definition of biocidal products and active substances in Regulation (EU) No. 528/2012[(1)] on the making available on the market and use of biocidal products.

(1) REGULATION (EU) No 528/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 May 2012 concerning the making available on the market and use of biocidal products, Official Journal of the European Union, L 167/1, 27.6.2012

All **input materials** (i.e. ingredients and auxiliary materials) must fulfil the requirements of RL5001 "Chemicals Directive".

The input materials and recipe compliance of the ingredients in the end product must be checked by means of inspections at the production facility (PSI).

Samples for laboratory tests are taken by the inspector or an independent third party.

Verification by laboratory analysis

Material-specific controls exclude product risks as defined below.

The limit values and methodology are contained in Section 3.2/3.3 of this guideline.

If secondary raw materials from post-consumer recycling occur as ingredients in the end product, the limit values for PAHs must be complied with.

End products containing post-consumer recycled material (PCR) must undergo a purity check for mineral respirable foreign fibres.

If calcareous input materials or talc are present as ingredients in the end product, geogenic asbestos must be excluded.

If organic substances are present in the end product, the limit values for organohalogen compounds must be complied with.

If products from forestry and agriculture are present in the end product, pesticide inputs must be excluded. The limit values must be complied with.

2.3 Raw Material Sourcing, Production of Preliminary Products, Production

The applicant must declare and require its suppliers to ensure that no synthetic pesticides containing active ingredients that are excluded under the natureplus Chemicals Guideline RL-5001 are used during the growth phase or during harvesting, storage and transport of the raw materials used for chip and fibre production.

Compounds based on arsenic or mercury must not be employed.

The applicant fulfils this requirement by submitting the relevant delivery specifications or supplier agreements.

The applicant must have its own quality control system.

The applicant shall provide evidence of this by submitting the relevant supporting documents, e.g.:

- monitoring/quality assurance protocols
- test reports on factory production control
- certificate of conformity from the notified body

In production facilities outside the European Union, the applicant must demonstrate that the production facility has a hazardous substance management system for the protection of employees that meets the relevant European standards and legal regulations. This must also include information on the release of dust and compliance with the general dust limit values. Where technical or organizational measures cannot ensure compliance with general dust limit values or other workplace limit values, suitable personal protective equipment must be provided. Efforts must be made to minimize avoidable exposure of workers.

The product must not contain any heavy metals that are not typical of the material. This must be verified by means of an element analysis. If the limit values are exceeded (see 3.2 Element analyses), the input materials must also be analyzed.

Paper fibres

Paper fibres must consist of waste paper or suitable production residues from the processing of paper, board or printed products. The aim is to keep the plastic content of the printed fibres as low as possible; therefore, specific requirements apply to the types of waste paper used.

The following paper sources in accordance with EN 643[(1)] or of equivalent quality are the only ones permitted:

- Group 1, lower grades, 1.01.00–1.11.00
- Group 2, medium grades, 2.01.00–2.07.01, 2.14.00, 2.14.01
- Group 3, higher grades, 3.01.00–3.10.00 and 3.12.00–3.20.01
- Group 4, high-strength grades, 4.01.00–4.08.00
- Group 5, special grades, 5.01.00 and 5.02.00

The following paper sources according to EN 643[(1)] are not permitted:

- Group 2, medium grades, 2.08.00–2.13.00
- Group 3, better grades, 3.10.01–3.11.01
- Group 5, special grades, 5.03.00–5.14.01

Production residues, e.g. pre-consumer waste or post-industrial waste (PIR) such as off-cuts from paper processing or newspaper production, may be used provided that they are comparable to the permitted paper sources according to EN 643 in terms of composition, coating, lamination, plastic content and other foreign matter content.

Heavily coated, laminated or plastic-laminated paper grades are excluded.

The applicant shall demonstrate this by submitting relevant delivery specifications, supplier agreements or equivalent evidence.

(1) EN 643 - Papier, Karton und Pappe - Europäische Liste der Altpapier-Standardsorten / Paper and board - European list of standard grades of paper and board for recycling

Wood fibres

Compliance with the wood origin and extraction guideline GL5002 must be demonstrated.

The applicant shall provide evidence that the wood used complies with the Waste Wood Ordinance(1) (D), the Recycled Wood Ordinance(2) (A) or an equivalent regulation.

(1) Ordinance on Requirements for the Recycling and Disposal of Waste Wood (Waste Wood Ordinance - AltholzV)

(2) Ordinance of the Federal Minister of Agriculture, Forestry, Environment and Water Management on the recycling of waste wood in the wood-based materials industry (Recycling Wood Ordinance - RHV), Federal Law Gazette II No. 160/2012

2.4 Usage

During use, the product must not have any odour or any odour foreign to the product.

Grenzwerte und Methodik sind in Abschnitt 3.3 dieser Richtlinie enthalten.

This criterion does not need to be checked if the product consists of 99 M% mineral ingredients.

The emissions must not exceed the natureplus limit values in accordance with RL5010 "Low Emission Building Products" during the utilisation phase.

See also section 3.3 Volatile organic compounds (VOC - TVOC)

The requirement may be waived if the product consists of 99 M% mineral ingredients.

2.5 Reuse, recycling and disposal

The applicant must submit a dismantling concept that shows the possibilities for reuse, recyclability or compostability of the blown-in insulation material and provide proof of existing recycling processes, e.g. suction.

For products with mineral components above 5 M%, a heavy metal eluate analysis (see element analyses 3.2) must be carried out to ensure that no heavy metals are released in hazardous concentrations. The threshold values must be complied with.

2.6 Ecological Parameters

All products in this product group must be manufactured in such a way that the environmental parameters listed in RL5020 are complied with.

2.7 Public Declaration

A public declaration of ingredients[1] must be provided in the official language of the country in which the product is intended for sale. It must be freely accessible. Ingredients must be listed in descending order of weight. The following publicly accessible documentation paths are permitted:

- Product packaging
- Technical data sheet
- Sales brochures
- Website

Ingredients from preliminary products or preparations that remain in the final product with a content of >1 M% must also be included in the full declaration.

The following applies to the public declaration of ingredients:

- above 1 M% the name of the ingredient
- below 1 M% at least the functional name of the ingredient, the mass order is cancelled.

[1] Ingredients are substances and mixtures that remain in the final product. Reactants and ancillary input materials are included in the non-public full declaration submitted to the assessment body

Furthermore, there is an obligation to include the following information with the product or to make it available to the consumer or user in an appropriate manner (e.g. online):

- Instructions for use and safety instructions
- Storage and disposal instructions

- Batch numbers
- Country of production
- Country of origin of input materials > 20 M-% where there is a deviation from the country of production

When using ingredients with an environmentally hazardous potential, the applicant must indicate at an appropriate place which measures are to be taken within the framework of dismantling and demolition work to protect the environment (e.g. controlled dismantling).

For thermal insulation materials, the following product-specific information shall be provided to the consumer or user, as applicable.

- Labeling in accordance with the guidelines of the European Community (Communauté Européene, CE marking) or the respective building approval with an indication of the scope of validity
- Bulk density in kg/m³
- Nominal thermal insulation value λ_D according to EN ISO 10456 or equivalent standard
- Thermal insulation design value λ_R according to EN ISO 10456 or equivalent standard
- Type of application or areas of application according to DIN 4108, ÖNORM B 6000 or equivalent standard
- Fire behavior Euroclass according to EN 13501-1

The following product-specific information shall be provided to the consumer or user for blown-in insulation materials.

- Settlement behavior according to EN 15101-1 or equivalent standard
- Information on low-dust processing and dust protection measures (PPE) (pictograms and text form)
- Technical document on deconstruction and recovery processes that enable reuse or recycling
- Resistance to mould growth in accordance with standard product specifications

The natureplus label together with the license number as well as the natureplus-certificate must be made publicly visible in context with the certified products after succesful certification.

This can be achieved, for example, by:

- Presentation on the website
- Additions to the technical data sheet
- Supplementary documents for the product
- Imprinting the test mark on the product packaging (see section 2.9)

2.8 Processing and Installation

The applicant must demonstrate whether low-dust working methods are available for processing the product. If this is the case, these procedures are to be recommended and suitably presented within the processing guidelines. Compliance with the general dust limit value must be ensured by low-dust working methods. If this is not possible, the wearing of personal protective equipment must be prescribed.

For in-situ products, the applicant must provide evidence that processing guidelines and training documents with the following content are available:

- Information on low-dust processing methods, e.g. deaerated blowing technique
- If wood is used: Information on particular hazards associated with the generation of wood dust and the necessary protective measures in relation to the type of wood used
- Recommendations for wearing personal protective equipment
- Implementation methods and instructions for safe installation
- Templates for documenting the safe installation for the customer
- Design examples, in particular for the flow-free and condensation-free design of components

2.9 Packaging

The packaging used must be recyclable.

The manufacturer must belong to a recycling system, if one exists for the corresponding material.

Paper and cardboard packaging must be made from recycled paper. Alternatively, paper from sources as per GL5002 is also permitted.

Plastic packaging must be made from polyolefins. PET, polystyrene or polycarbonates are allowed exceptionally in reasonablecases.

PVC packaging is generally not permitted.

Packaging must not contain biocides.

3 LaboratoryTests

The products are subject to laboratory analyses to test for harmful substances and undesirable ancillary ingredients. A representative sample is collected during the production audit. If the sample collection cannot be conducted by a natureplus examiner, an independent person designated by natureplus can collect the sample. For products with different sizes but the same composition, a single sample is sufficient.

3.1 Volatile Organic Compounds VOC / TVOC

To check the emission of VOC and to determine the TVOC and TSVOC, an emission chamber test is carried out with the product. Measurements are usually performed after 3 and 28 days. The test-chamber examination is performed according to the current version of natureplus guideline 5010. The product must comply with the limit values specified in guideline 5010.

3.2 Element Analyses

The product is subject to an element analysis to determine the content of harmful elements and to check for undesirable contaminations. The measurements have to be in compliance with the limit values. The analysis is performed according to the current version of the test method TM-02 metals.

An eluate analysis is mandatory if the required values of the content analysis are not met.

Element	Limit value [mg/kg]
Arsenic (As)	≤ 2
Cadmium (Cd)	≤ 0,5
Cobalt (Co)	≤ 5
Chromium (Cr)	≤ 10
Copper (Cu)	≤ 50
Mercury (Hg)	≤ 0,2
Nickel (Ni)	≤ 10
Lead (Pb)	≤ 10
Antimon (Sb) (1)	≤ 2
Tin (Sn)	≤ 10
Thallium (Tl)	≤ 1
Zinc (Zn)	≤ 500

(1) As antimony acts as a catalyst in polyester production, the limit value for antimony does not apply for products containing supporting fibres on polyester basis.

3.3 Other Analyses

Halogenic organic compounds

Test parameters	Limit values	Unit	Method
Halogenic organic compounds: AOX/EOX	≤ 1	mg/kg	TM-03 Halo

Odour

Test parameters	Limit values	Unit	Method
Odour	≤ 3	Odour intensity	TM-04 Odour

Polycyclic aromatic hydrocarbons (PAH)

Nur im Bedarfsfall zu untersuchen:

Test parameters	Limit values	Unit	Method
Polycyclic aromatic hydrocarbons	≤ 10	mg/kg	HPLC/GC-MS

Foreign substances/fibres

To be examined only if necessary:

Test parameters	Limit values	Unit	Method
Foreign substances/fibres	NAD		TM-08 foreign fibres

Pesticides

To be examined only if necessary:

Test parameters	Limit values	Unit	Method
Total pesticides	≤ 1	mg/kg	TM-05 Pesticides
Individual pesticides Organochlorine pesticides: Aldrin, Chlordane, DDD, DDE, DDT, Dichlofluanid, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Lindane, Pentachlorophenol Organophosphate pesticides: Dimethoat, Fenthion, Parathion-methyl, Parathion-ethyl, Phosalon Pyrethroids: Cypermethrin, Lambda-Cyhalothrin, Permethrin Other: Benomyl, Carbendazim, Prochloraz	≤ 0,1	mg/kg	TM-05 Pesticides

4 Appendix

Test methods

TM-01 VOC : Volatile Organic Compounds VOC/TVOC, formaldehyde, acetaldehyde and TSVOC: DIN EN ISO 16000 series expanded by the natureplus implementation rules in guideline 5010.

TM-02 Metals: ICP-MS measurements according to DIN EN ISO 17294-2, supplemented with the natureplus implementation rules and a sample preparation adjusted to the issue analysed.

TM-03 Halo: Halogenic organic compounds after combustion, determined by microcoulometry according to the natureplus implementation rules "AOX/EOX".

TM-04 Odour: natureplus implementation rules "odour intensity", 6-degree grading scale 3 days after loading the test chamber following VDA 270:2018.

TM-05 Pesticides: DFG S 19 extended by natureplus implementing regulations

TM-08 Foreign fibres and foreign substances: scanning electron microscopy SEM

TM-09 Monomeric isocyanates: 24h after test chamber loading

TM-10 PAH: HPLC / GC-MS, sum according to EPA

Glossary

micro-/macro-/nanoplastic

Definition translated from English from Dietary and inhalation exposure to nano- and microplastic particles and potential implications for human health. Geneva: World Health Organization; 2022. License: CC BY-NC-SA 3.0 IGO

“Microplastics – a material that consists of solid polymer-containing particles, to which additives or other substances may have been added, and in which ≥ 1% w/w of the particles have (i) all dimensions 1 nm ≤ x ≤ 5 mm or (ii) in the case of fibers, a length of 3 nm ≤ x ≤ 15 mm and a length-to-diameter ratio of > 3. Polymers that occur in nature and have not been chemically modified (except by hydrolysis) are excluded, as are polymers that are (biologically) degradable (35); plastic particles < 5 mm in diameter; 1 - < 1000 µm (37)

nanomaterial – a material with at least one external dimension in the nanoscale or with at least one internal or surface structure in the nanoscale (49); a natural, incidental or manufactured material containing particles in an unbound state or as an aggregate or an agglomerate for which ≥ 50% of the particles in the number size distribution have one or more external dimensions in the size range 1-100 nm (40)

Nanoplastic – plastic particles with a size of 1 to < 1000 nm (37, 50)

Macroplastic – plastic ≥ 1 cm (25); plastic ≥ 5 cm (44); plastic waste ≥ 5 mm (45)

Bio-based plastics

"Bio-based plastics are made entirely or partly from biogenic raw materials (e.g. corn and sugar cane). Biodegradable plastics, on the other hand, are plastics that decompose under certain conditions, leaving behind mainly carbon dioxide (CO2) and water when they do so. Bio-based plastics can be biodegradable, but often are not, such as bio-based PET. Conversely, biodegradable plastics can be both fossil-based and biobased.”

Biodegradable plastics

- "Non-biodegradable plastics made from petrochemical raw materials. These are the classic or traditional plastics.
- Biodegradable plastics made from renewable raw materials. These plastics are used, for example, in organic waste bags.
- Biodegradable plastics from fossil raw materials. The applications are similar to those in group 2.
- Non-biodegradable plastics from renewable raw materials. This group includes plastics that are chemically identical to those from fossil raw materials, e.g. bio-PE in cosmetic packaging. They are also referred to as drop-in solutions and account for a good half of bioplastics."