natureplus e.V.

Guideline 0105

Blown-In and Loose-Fill Insulation from Ligno-Cellulose Fibres (discontinued)

Version: Oct. 5, 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 strict limits 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

This guideline was suspended on 1 July 2026 by a resolution of the Criteria Commission and the Executive Board.

Products certified in accordance with these requirements remain valid until the end of the licence period and must continue to comply with the requirements of this guideline.

The product group described here will in future be covered by Guideline 0107 "Blown-in Insulation Materials".

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

The requirements apply to blow-in and bulk insulation materials made from lignocellulosic fibres. They are to be applied exclusively to such products.

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 manufacturer shall state the construction/building physics properties of the product and shall indicate in this context which standards and test guidelines/ methods were used to assess these properties and, if these standards contain requirements for the products, whether these are met by the products.

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 thermal nominal value at 10°C and u_{dry} as per EN ISO 10456 or a comparable standard must comply with the following requirements:

Application Area	$\lambda_{90,90}$ [W/mK]
Insulation not subject to pressure load (W, WL, WV)	≤ 0,045
Insulation subject to pressure load (WD)	≤ 0,065
Insulation functioning as plaster base (WD-PT	≤ 0,050

The fire behaviour of the product must correspond at least to building material class E according to EN 13501-1.

In case the product is supplied to countries in which other requirements apply as the ones in the standards mentioned so far, these requirements must be met as well. The applicant states the countries where the product is distributed and provides official certification by approved testing institutions to confirm compliance with the requirements. The product must not, however, fall short of the requirements established by natureplus.

The product must not be treated with compounds which prevent or strongly reduce its ability for water uptake or water release.

The product must be resistant to mould growth under the conditions of a professional installation. Evidence has to be provided in form of a rating of mould fungus growth as category 0 (no growth visible with microscopic analysis) according to EN ISO 846.

Evidence must be provided for the different applications that the product retains its volume and stably fills the intended cavity on a long term basis.

The manufacturer must attest to at least one safe method of inserting the insulation into the intended cavity and ensure that this method is available to the installer.

The manufacturer must obligate the installer to an installation method for which the results of every installation can be checked. The manufacturer must declare that he has committed the installer to provide proof to the customer of a sufficient compaction of the insulating material for every installation.

2.2 Composition, Forbidden Substances, Substance Restrictions

At least 85% of the product based upon its dry weight must be made from ligno-cellulose based raw materials. Only mineral additives are permitted as flame retardants.

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 and addition of biozides is not permitted.

The product is subject to assessments as detailed in section 3 and must comply with the limits specified therein.

2.3 Raw Material Sourcing, Production of Preliminary Products, Production

Where wood is used as an ingredient, compliance with GL-5002 "Wood extraction and origin" must be ensured.

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.

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.

2.4 Usage

The product must not exhibit any unpleasant or foreign smells or odours. The emissions during use have to be in compliance with the limit values according to section 3.

Emissions must not exceed the natureplus limits according to section 3 during the use phase. (see section 3 and RL5010)

The product may be installed or processed in the factory. If the product is to be used on the building site, the manufacturer must ensure that the installer is provided with adequate instructions on the appropriate method of installation and processing and the avoidance of dust production. This is to be accomplished by informing and training the installers on the use of suitable methods (e.g. ventilated blower technologies/ equipment). This information is to be displayed on the packaging in an appropriate form (pictograph and text).

The product may only be delivered to correctly trained installers. The product may only be used within the designated user-company by trained personnel and in compliance with the rules for Heath and Safety at Work. The manufacturer must provide the installer with sufficient information to ensure the correct installation and settlement of the product.

2.5 Reuse, recycling and disposal

The product must be suitable for safe disposal in a waste incineration facility.

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

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.

If the dust release in the application is higher than the general dust limit values, the manufacturer has to commit himself to presenting a system which ensures that the product is only processed by companies that are equipped with theoperational and personnel prerequisites.

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.

Once awarded, the natureplus label together with the license number must be printed on the packaging or made visible to the consumer in another suitable place.

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)	≤ 5
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

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