natureplus e.V.

# Guideline 1101

# Masonry building materials

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:

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## Information on the entry into force and scope of this award guideline and its previous versions

The present guideline 1101 replaces the following natureplus award guidelines:

- RL1102 Vertically Perforated Bricks
- RL1104 Thermal Insulation Composite Systems
- RL1105 Porous Concrete Blocks and Elements

Following the decision of the Criteria Commission on 03.03.2025 and the Executive Board on 24.03.2025, the above guidelines will continue to apply to existing product certifications until March 2030. New product certifications according to these guidelines are not permitted. When 1101 comes into force, this will only be possible via this new guideline.

# 1 Application Areas

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

The guideline applies to building products made of mineral and renewable raw materials used as bricks for the construction of masonry. The following product groups are examples of those covered by the Directive:

- Vertical hollow brick (solid brick, vertical hollow brick, masonry brick with integrated thermal insulation, clinker brick) according to EN 771-1
- Sand-lime bricks according to EN 771-2
- Aerated concrete blocks according to EN 771-4
- Clay bricks according to national standards (e.g. DIN 18945, ÖNORM B 3230-1)
- Hemp limestone bricks
- Straw clay blocks
- ...

Construction products must have a current European Technical Approval, or at least a national technical approval.

The certified products must be load-bearing, but at least self-supporting, and be suitable for use as constructive wall-building materials.

Integrated insulation materials and aggregates are permissible within the framework of the further requirements of this guideline.

The guideline does not apply to the following product groups:

- Solid wood building components
- Wood-concrete shuttering blocks according to EN 15498
- Wood-concrete according to EN 14474
- Concrete masonry according to EN 771-3
- Cast stone to EN 771-5

The following insulating materials (e.g. in filler blocks or sandwich elements) are not permitted:

- Polystyrene (EPS) to EN 13163
- Rigid polyurethane foam (PU) according to EN 13165
- Phenolic foam (PF) according to EN 13166

# 2 Award Criteria

References and links are provided at the appropriate points in the document to indicate compliance with basic guidelines 5001, 5002, 5003, 5004, 5010, 5020.

## 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)

## 2.2 Composition, Forbidden Substances, Substance Restrictions

### Requirements for input materials

**Ingredients** in the end product:

The product must consist of 99 M-% mineral and/or biobased raw materials.

**Auxiliary materials** for manufacturing the end product:

Porosifying agent (if used): Only residual materials may be used as porosity agents. Deviations from this requirement must be justified in writing by the manufacturer from a technical point of view.

Aeration agent (if used): Any aluminium used in the aeration agents must be from a recycled source.

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.*

The content of harmful heavy metals in the product must be checked by means of elemental analysis.

This is done by means of a complete elemental analysis. Contamination or undesirable additives can also be detected in this way.

The solubility of metals and metalloids must be ruled out by means of an eluate analysis.

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 cementitious ingredients are present in the end product, the limit values for sensitising chromium VI must be complied with.

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

A certificate of origin must be provided for all raw materials.

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

When using mineral raw materials, the requirements of RL-5003 " Nature conservation in the mining of mineral raw materials" must be complied with.

The requirements according to RL-5004 "Transparency and social responsibility" apply.

**Requirements for the plant technology of the production facilities**

European and national laws and regulations must be complied with, whereby EU regulations take precedence. This specifically applies to production sites outside the EU. Conformity must be demonstrated for the following topics:

- Air pollution
- Water pollution and water protection
- Waste treatment
- Environmental information

**Requirements for occupational health and safety in the production facilities**

European and national laws and regulations must be complied with, whereby EU regulations take precedence. This specifically applies to production sites outside the EU.

## 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.

During the period of use, no heavy metals of concern must be released from the material.

This must be fulfilled by means of an eluate analysis.

*See also section 3.2 Elemental analyses.*

## 2.5 Reuse, recycling and disposal

A concept for a circular economy must be presented. In particular, the concept must address the following points:

- reuse of the products to be certified
- separation of input materials, components and building elements
- recycling scenarios for recyclates

A take-back system for residual materials / offcuts / product remnants must be implemented or designed. Systems operated by third parties are permitted. (e.g. cross-manufacturer take-back of construction waste and provision of RC material for production).

A recycling system for demolition material must be designed (post-consumer recycling).

No harmful heavy metals may be released from the material. This increases the chances of recycling and makes storage of the material safe.

This must be fulfilled by means of an eluate analysis.

*See also section 3.2 Elemental analyses.*

## 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 $\lambda_D$ according to EN ISO 10456 or equivalent standard
- Thermal insulation design value $\lambda_R$ 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

Additionally, the following product-specific information must be made available to the consumer or user:

- Details of warranty and warranty period
  - statutory warranty
  - voluntary manufacturer's guarantee
- Recommendation of compatible plasters and mortars for masonry construction

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 manufacturer must recommend a natureplus-certified mortar to be used for applying the product.

If such a mortar is not available, at least one low-emission mortar based on mineral compounds is to be recommended. This mortar must not contain more than a maximum of 5 M% organic components and a maximum of 0.1 M% volatile organic compounds. This is subject to testing based on the full declaration of all input materials, supplemented with information supplied by the manufacturer of the mortar.

The following additives are prohibited:

- Glycol ethers and -esters
- APEO's (Alkyl phenol ethoxylate)
- Formaldehyde separators/dispersers
- Halogen organic compounds

Thin-bed mortars containing cement must comply with EU-Guideline 2003/53/EC.

## 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

To determine the content and solubility of elements of concern and to check for undesirable contamination, both a complete elemental analysis and an eluate analysis are carried out on the product.

The limit values for the product groups must be complied with. The analysis is carried out in accordance with test method TM-02 Metals in its current version.

The lists of elements and limit values for heavy metals can be found in the appendix ‘Material limit values for heavy metals’.

**Complete elemental analysis**

The complete analysis serves to check for undesirable additives during production. A distinction is made between mineral raw materials and additives (combustible materials such as plastics, sewage sludge or similar).

The limit values refer to the mineral content of the product. If these are exceeded, the individual raw materials are examined in the first step. If the exceedances can be traced back to a geogenic origin, exceptions can be made.

**Eluate analysis**

Eluate analysis is used to check the solubility of metals/metalloids from the product. Compliance with the limit values is important for further processing at the end of the life cycle.

In case the limit values are exceeded, an element analysis will be performed for the raw materials.

If the metal/metalloid concentrations recorded can be linked to the raw materials, an additional eluate analysis of the product will be conducted. This is used to check the solubility of the metals/metalloids in the product.

The requirements of the elemental analysis are deemed to be met if the measurements are in compliance with the eluate limit values as listed below.

If the metal/metalloid concentrations can not be attributed to the raw materials, additional research is necessary to elucidate the causes of the element contents.

## 3.3 Other Analyses

**Halogenic organic compounds**

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

**Chromium VI**

| Test parameters | Limit values | Unit | Method |
|---|---|---|---|
| Chromium VI (Cr VI) | ≤ 1 | mg/kg | DIN EN 196-10:2016-11 (appendix D) |

**Polycyclic aromatic hydrocarbons (PAH)**

If the product contains secondary materials:

| Test parameters | Limit values | Unit | Method |
|---|---|---|---|
| Polycyclic aromatic hydrocarbons | ≤ 16 | 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<br>Organochlorine pesticides: Aldrin, Chlordane, DDD, DDE, DDT, Dichlofluanid, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Lindane, Pentachlorophenol<br>Organophosphate pesticides: Dimethoat, Fenthion, Parathion-methyl, Parathion-ethyl, Phosalon<br>Pyrethroids: Cypermethrin, Lambda-Cyhalothrin, Permethrin<br>Other: Benomyl, Carbendazim, Prochloraz | ≤ 0,1 | mg/kg | TM-05 Pesticides |

**Odour**

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

# 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

## Material limit values for heavy metals

Clay Bricks, Building bricks

| Element | Total dissolution limit value [mg/kg] | Eluate limit value [mg/l] |
|---|---|---|
| Arsenic (As) | ≤ 20 | ≤ 0,04 |
| Cadmium (Cd) | ≤ 1 | ≤ 0,004 |
| Chromium (Cr) | ≤ 100 | ≤ 0,2 |
| Copper (Cu) | ≤ 100 | ≤ 0,2 |
| Mercury (Hg) | ≤ 0,5 | ≤ 0,001 |
| Molybdenum (Mo) | ≤ 5 | ≤ 0,2 |
| Nickel (Ni) | ≤ 100 | ≤ 0,1 |
| Lead (Pb) | ≤ 20 | ≤ 0,04 |
| Antimon (Sb) | ≤ 5 | ≤ 0,02 |
| Tin (Sn) | ≤ 10 | ≤ 0,5 |

Sand-lime brick and Aerated concrete

| Element | Total dissolution limit value [mg/kg] | Eluate limit value [mg/l] |
|---|---|---|
| Arsenic (As) | ≤ 10 | ≤ 0,04 |
| Cadmium (Cd) | ≤ 0,5 | ≤ 0,004 |
| Chromium (Cr) | ≤ 50 | ≤ 0,2 |
| Copper (Cu) | ≤ 35 | ≤ 0,2 |
| Mercury (Hg) | ≤ 0,3 | ≤ 0,001 |
| Nickel (Ni) | ≤ 20 | ≤ 0,1 |
| Lead (Pb) | ≤ 15 | ≤ 0,04 |
| Antimon (Sb) | ≤ 5 | ≤ 0,02 |
| Tin (Sn) | ≤ 5 | ≤ 0,5 |