natureplus e.V.

Guideline 0501

Ceramic Roof Tiles

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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1 Application Areas

The following criteria contain the requirements for the awardance of the natureplus eco-label for untreated/natural ceramic roofing tiles or ceramic roofing tiles treated with glazes or engobes. This awardance guideline is to be applied exclusively to the named 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
- GL-5003 Nature Conservation when Exploiting Mineral Resources
- GL5004 Transparency and Social Responsibility
- GL5020 Climate compatibility and energy efficiency

2.1 Functional Suitability

The product must fulfil the requirements of DIN EN 1304. The manufacturer must provide documentation proving compliance with the requirements of DIN EN 1304.

2.2 Composition, Forbidden Substances, Substance Restrictions

The following are permitted: Clay, loam, quartz sand and water.

The use of any additional additive must be technically justified. The proportion of the organic components within the product is restricted to 1% of the weight of the product (total organic carbons).

Glazes and engobes may not contain any metal compounds which are forbidden according to GL-5001.

Roofing tiles with a porous internal structure are not eligible for certification.

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

Proof must be provided of the compliance with the official requirements relating to the extraction of the clay, loam and quartz sand, the re-cultivation of the agricultural land and the manufacture of the tiles.

The brick production facility must meet the most modern standards relating to

- the efficiency of the kiln and
- the flue gas cleaning.

Atmospheric emissions of

- dust
- sulphur dioxides, nitrous oxides, hydrogen chloride, hydrogen fluoride
- benzene, phenol, styrene, formaldehyde
- volatile organic compounds (specified as the total level of carbons)

must comply with the limitation requirements of the technical code of practice for the prevention of air pollution (TA-Luft) or a comparable standard and/or the regulations for tile production facilities (BGBl. 720/1993).

Periodic controls through internal and external personnel, the throughput levels, the height of the chimney and the location of the facility must all be sufficient to ensure that no plant damage is caused by the effects of any fluoride emissions. If there remains any suspicion of plant damage then measurements on the surrounding vegetation are to be performed. As a guideline, in this case the limits of the Austrian forestry regulations for measurements on vegetation (indicator – fir tree) should be applied:

- 0.8% total fluoride in the first year of needle growth
- 1% total fluoride in the second and third years of needle growth

2.4 Usage

No further requirements in this section.

2.5 Reuse, recycling and disposal

A disposal concept must be provided for the products.

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).

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

- Type and field of application
- Guarantee and guarantee period

2.8 Processing and Installation

No further requirements in this section.

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 GL-5002 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.

The natureplus certification mark has to be printed on the packaging after it has been awarded.

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

No further requirements in this section.

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.

The element analysis is performed on untreated product material (without engobe). In case the limit values are exceeded, an element analysis will be performed for the clay and loam 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. 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.

Furthermore, an eluate analysis has to be performed for products treated with engobes, when theengobes used to treat the product contain metals or metal compounds for which limit values are specified. 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.

Element	Limit value [mg/kg]
Arsenic (As)	≤ 20
Cadmium (Cd)	≤ 1
Chromium (Cr)	≤ 100
Copper (Cu)	≤ 100
Mercury (Hg)	≤ 0,5
Molybdenum (Mo)	≤ 5
Nickel (Ni)	≤ 100
Lead (Pb)	≤ 20
Antimon (Sb)	≤ 5

For the eluate analysis, the following limit values apply:

Element	Limit value [mg/kg]
Arsenic (As)	≤ 0,05
Cadmium (Cd)	≤ 0,004
Chromium (Cr)	≤ 0,05
Copper (Cu)	≤ 0,2
Mercury (Hg)	≤ 0,001
Molybdenum (Mo)	≤ 0,05
Nickel (Ni)	≤ 0,04
Lead (Pb)	≤ 0,05
Antimon (Sb)	≤ 0,006

3.3 Other Analyses

Chromium VI

Test parameters	Limit values	Unit	Method
Chromium VI (Cr VI)	≤ 2	mg/kg	TRGS 613

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