natureplus e.V.

Guideline 0807

Masonry mortar

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for the awardance of the eco-label

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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 award criteria contain the requirements for awarding the natureplus quality mark to factory-produced lime and cement-based masonry mortar (sack or silo mortar). They are to be applied exclusively to such products as normal masonry mortar, light masonry mortar, thin-bed mortar,or roller mortar. Masonry mortars based on synthetic ingredients are not considered here.

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
- GL5010 Low-emission building products
- GL5020 Climate compatibility and energy efficiency

2.1 Functional Suitability

Masonry mortars based on lime and cement must meet the requirements of EN 998-2 or a comparable standard. The following requirements apply to the components used (if applica-ble):

- Cement: EN 197 or equivalent standard
- Lime: EN 459-1 or equivalent standard
- Aggregates for mortar: EN 13139 or equivalent standard
- lightweight aggregates for mortar: EN 13055-1 or equivalent standard
- admixtures for mortar: EN 934-1 and -3 or equivalent standard

The manufacturer is obligedto prove compliance with these requirements by means of ap-propriate documents.

2.2 Composition, Forbidden Substances, Substance Restrictions

The product must consist of at least 98% by weight of mineral raw materials. The following ingredients are permitted: Building lime, cement, mineral aggregates (e.g. sand) as well as for light masonry mortar mineral light aggregates such as expanded perlite, expanded clay or expanded glass.

Secondary materials should preferably be used as aggregates or lightweight aggregates. The manufacturer must disclose the current status of secondary raw material use and the situa-tion regarding current and possible future availability. He must also present a concept for in-creasing the proportion of secondary raw materials.

The proportion of organic input materials is limited to 2 M-% of the product. An exception to this regulation can be made after approval by the review commission if the manufacturer can prove that his product is suitable for special areas of application or has special pro-cessing or technical properties and these represent an ecological advantage. In these excep-tional cases, the proportion of synthetic organic components may be up to 5 %.

The use of other additives and admixtures must be technically justified. Methyl cellulose is classified as a renewable raw material.

The use of synthetic fibers, synthetic lightweight aggregates (e.g. expanded polystyrene) and biocides is not permitted.

The following substances are not permitted to be added to the product:

- Glycol compounds
- APEO's (alkylphenol ethoxylates)
- Azo dyes that cleave off carcinogenic amines
- Biocides that are not used for pot preservation (film preservatives)
- Halogenated isothiazolinones
- Formaldehyde separator

The product is subjected to tests according to section 3 and must comply with the limit val-ues specified there.

2.3 Raw Material Sourcing, Production of Preliminary Products, Production

A proof of origin must be provided for all raw materials used. When using mineral raw mate-rials, the requirements of RL-5003 must be observed. Proof of compliance with these re-quirements must be provided.If silica sand is used as an additive, the manufacturer must prove that the workers are not exposed to any danger from quartz dust during the production process. Provide appropriate evidence: Wet processing of the quartz sand; no permanent workplaces in areas with high dust exposure; dust extraction equipment with high-performance filters; regular checks and inspections by official supervisory authorities.

If the product contains more than 5% cement, the cement manufacturer must confirm that the following requirements are met:

- The cement production plant must comply with the current state of the art, particularly with regard to the use of raw materials and energy sources, energy efficiency and emissions into the atmosphere.
- If waste is co-incinerated, emissions shall comply with the requirements of Directive 2010/75/EU, Annex VI, Part 4, Section 2. Compliance with the official regulations for the extraction of natural mineral resources and for the renaturation of the extraction areas shall be demonstrated. The extraction may not impair the protection objectives of areas that are protected or worthy of protection by law, either nationally or inter-nationally. The relevant requirements of the natureplus Basic Guideline RL-5003 ap-ply.

2.4 Usage

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

Emissions must not exceed the natureplus-limits as per Section 3 during the utilisation phase.

2.5 Reuse, recycling and disposal

The product components must be suitable for disposal at a landfill for inert waste in accord-ance with EU Council Decision 2003/33/EC and in accordance with the national implementa-tions of the respective member states. The manufacturer is

obliged to prove compliance with the requirementsof the member state (e.g. approval by national authorities or labora-tory tests).

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

On the product packaging -if this is not possible, as close as possible to the product, in the technical data sheet or the sales brochure -a full declaration of the ingredients (in the na-tional language or in English) must be provided in accordance with the EU Cosmetics Regula-tion, according to decreasing mass percentage. Input materials from preliminary products or preparations that remain in the endproduct with a mass content of >0.1% must also be in-cluded in the full declaration.

The following applies to the naming of the input materials within the scope of the full decla-ration:

- over 1 M-% the name of the substance
- less than 1 M-% at least the functional designation

Furthermore, the obligation exists to attach the following information to the product or to make it available to the consumer or user in a suitable manner (e.g. on the Internet):

- Processing instructions and safety instructions
- Storage and disposal instructions
- Batch numbers
- Indication of the place and country of manufacture of the product

If ingredients with environmentally hazardous potential are used, the manufacturer must in-dicate at a suitable point which measures are to be taken in the context of removal and demolition work to protect the environment (e.g. controlled dismantling).

In addition, the consumer or user shall be provided with the following product-specific infor-mation where applicable.

- Material consumption or output quantity
- Indication of the mixing ratio

- Application temperature
- Minimum and maximum coating thickness
- Time frame for initial and complete curing
- pH value of the mortar mixture
- Expiration Date

2.8 Processing and Installation

Products containing cement must meet the requirements of Regulation (EC) No 1907/2006, Annex XVII.

2.9 Packaging

The packaging used must be recyclable. The manufacturer must belong to a recycling sys-tem, if available.

Paper and cardboard packaging must consist of recycled paper. Alternatively, paper from sources in accordance with RL-5002 is permissible.

Plastic packaging must consist of polyolefins. PET, polystyrene,and polycarbonates are also possible as justified exceptions. PVC packaging is generally not permitted.

Packaging must not be equipped with biocides.

The natureplus symbol must be printed on the packaging after the awarding of the label.

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

Element	Limit value [mg/kg]
Arsenic (As)	≤ 10
Cadmium (Cd)	≤ 1
Cobalt (Co)	≤ 20
Mercury (Hg)	≤ 0,5
Nickel (Ni)	≤ 20
Lead (Pb)	≤ 30
Antimon (Sb)	≤ 5
Tin (Sn)	≤ 5

3.3 Other Analyses

Chromium VI

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

Halogenic organic compounds

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

pH value

Test parameters	Limit values	Unit	Method
pH value	≤ 12,75		ISO 10390

Asbestos fibres

If the product contains secondary materials:

Test parameters	Limit values	Unit	Method
Asbestos fibres	asbestos free per DAB[1]		SEM

1: DAB: German Register of Medicines

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