



natureplus e.V.

## **Guideline 0807**

### **Masonry mortar**

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for the awardance of the eco-label

## 0 Introduction

The International Association for Sustainable Building and Living – natureplus e.V. – has set itself the goal, through the awardance of a quality label (eco-label), of promoting the use of those construction products which are especially suited to achieving the goal of economic sustainability. The three classic pillars of sustainability (the environment, social aspects and the economy) are reflected in natureplus's the three fundamental requirements: the environment, health and functional quality.

Every construction activity encroaches upon the natural environment and is connected with the consumption of limited resources. Our responsibility towards future generations requires us to undertake every effort to reduce these encroachments to the lowest level possible and to limit our use of resources to a necessary minimum. In view of the foreseeable exhaustion of the reserves of fossil fuels, for example, and the dangers to the earth's climate, such an approach is the only possible means to ensure sustainable and socially equitable development. For the building sector this means promoting the use and application of construction products which help to minimize the consumption of fossil fuels and limited resources. It is natureplus's intention to help promote the commercial success of those products which fulfil these demands.

Energy-saving building methods and the avoidance of uncontrolled ventilation facilitates the accumulation of volatile chemical compounds in the interior air that are emitted by building products and the inventory contained within the building. This presents a(n) (avoidable) danger to the health of the occupants. Also, the accretion of chemical contaminants (especially phthalates/plasticisers) from building products on house dust, the increasing use of biocides in everyday products and the dangers posed by mould growth due to negative product characteristics give rise for concern. An increasing proportion of the population are exhibiting reactions, such as allergies, to the negative health-related effects of these construction products. natureplus therefore evaluates the compatibility of construction products, especially in the usage phase, according to strict standards in order to actively promote those materials which pose no risk to health and are, in addition, conducive to a healthy room climate.

The natureplus®-Eco-label is an award for construction products which meet the highest standards of sustainability by exhibiting the best possible performance in terms of the environment, health and functionality. Scope of the assessment is the building material as raw material and as component. Only the best products in a particular product group are eligible for certification in order to act as an orientation for all building professionals and consumers towards the promotion of a culture of sustainable building. The natureplus®-Eco-label has anticipated the requirements of construction products of the European Construction Products Directive EU CPR 305/2011: In the future this regulation requires a declaration of performance with evidence of the sustainable use of natural resources and of compliance with requirements in terms of low impact, over their entire life cycle, on the environmental quality or on the climate, energy-efficiency and the hygiene, health and safety of people. The natureplus®-Eco-label already provides these proofs of performance in relation to the essential characteristics of construction products. This is gauged by natureplus according to criteria and requirements which, as a rule, far exceed the legal requirements and as a minimum comply in each case with the strictest recognised standards applicable.

The natureplus®-Eco-label is classified as a Type I environmental label as per ISO 14024, taking into consideration the EU Ecolabel Regulation and the EMAS regulation on environmental auditing, and is valid across the whole of Europe according to uniform criteria. The pre-requirements for a construction product to be certified with the natureplus®-Eco-label are its especially high performance characteristics in terms of the environment, health and sustainability. The main focuses are on the protection of limited resources by the minimisation of the use of petrochemical substances, sustainable raw material extraction/harvesting, resource-efficient production methods and the longevity of the products. Therefore, building products made from renewable raw materials, raw materials which are unlimited in their availability or from secondary raw materials will be favoured for certification.

## I 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:

- GL-5001 Chemicals Directive
- GL-5003 Nature Conservation when Exploiting Mineral Resources
- GL-5004 Transparency and Social Responsibility
- GL-5010 Low-emission building products
- GL-5020 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 applicable):

- Cement: EN 197 or equivalent standard
- Lime: EN 459-1 or equivalent standard
- Aggregates for mortar: EN 12620 or equivalent standard
- lightweight aggregates for mortar: EN 12620-2 or equivalent standard
- admixtures for mortar: EN 934-1 and -2 or equivalent standard

The manufacturer is obliged to prove compliance with these requirements by means of appropriate 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 situation regarding current and possible future availability. He must also present a concept for increasing 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 processing or technical properties and these represent an ecological advantage. In these exceptional 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 values 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 materials, the requirements of RL-5003 must be observed. Proof of compliance with these requirements 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 internationally. The relevant requirements of the natureplus Basic Guideline RL-5003 apply.

## 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 Recycling/Disposal

The product components must be suitable for disposal at a landfill for inert waste in accordance with EU Council Decision 2003/33/EC and in accordance with the national implementations of the respective member states. The manufacturer is obliged to prove compliance with the requirements of the member state (e.g. approval by national authorities or laboratory tests).

## 2.6 Ecological Parameters

All products in this product group must be manufactured in such a way that the ecological parameters listed in RL 5020 are fulfilled.

## 2.7 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 national language or in English) must be provided in accordance with the EU Cosmetics Regulation, 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 included in the full declaration.

The following applies to the naming of the input materials within the scope of the full declaration:

- 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 indicate 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 information 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 system, 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 Laboratory Tests

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. If a low VOC emission is to be expected, a termination measurement can also be carried out after 7 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 <sup>1</sup>		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.

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 24h after loading the test chamber

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

