

natureplus e.V.

Award Guideline GL 0604

MINERAL-BASED EXTERIOR WALL PAINTS

Issued: July 2017

For the award of the Eco-Label





Award Guideline GL 0604
MINERAL-BASED EXTERIOR WALL PAINTS
Version: July 2017

Page 2 of 8

1. Areas of application

The following criteria contain the requirements for the award of the natureplus Eco-label for mineral-based wall paints (silicate paints) for exterior applications according to DIN 18363 2.4.1.

Paints which are advertised for use for both exterior and interior applications must be evaluated according to the requirements of GL 0602.

2. Award criteria

The prerequisite for the award of the natureplus Eco-label is the fulfilment of the requirements this natureplus guideline. In addition, the product must also fulfil the requirements of the Chemicals Directive GL-5001 and the guideline for Transparency and Social Responsibility (GL-5004).

2.1 Functional suitability

Products that are awarded the natureplus Eco-label must fulfil very high functional suitability standards. Manufacturers may prove compliance with these requirements by reference to appropriate official standards and guidelines.

The following requirements must, without exception, be fulfilled:

- Diffusion-equivalent air layer thickness EN ISO 7783-2, Classification I, High water-vapour permeability
- Water-vapour transmission rate EN 1062-1, Classification III, Low water-permeability

2.2 Composition, prohibited substances, restricted substances

The product must be made to at least 95 M-% from mineral raw materials and water.

The proportion of organic components (e.g. acrylates) must not exceed a total level of 5 M-%. The proportion of organic solvents in uncoloured products must not exceed 0.5 M-%. Biocides, even those which are used for pot preservation, are prohibited.

The following product additives are prohibited:

- Softeners (According to VdL Guideline 01 (VdL – German Paint Industry Federation))



Award Guideline GL 0604
MINERAL-BASED EXTERIOR WALL PAINTS
Version: July 2017

Page 3 of 8

- Glycol compounds
- APEO's (alkylphenol ethoxylates)
- Halogen organic compounds
- Tin organic compounds
- Azo colorants that are capable of decomposing carcinogenic amines
- Formaldehyde decomposition agents

The product must not be produced using pigments or other additives that are based upon lead, cadmium, chrome VI or their compounds.

The product will be subject to an analysis as laid down in section 3 (Laboratory Tests) and must comply with the threshold limits stated therein.

The requirements relating to coloured products are to be found in the appendix: Coloured Products.

2.3 Raw Material Sourcing, Production of Pre-fabricated Products, Production

A certificate of origin must be provided for all input components which constitute a proportion of >25% of the product.

If titanium dioxide is employed, it must comply with EU-GL 92/112/EEC.

2.4 Usage

The product must be capable, without the addition of biocides, of retarding the growth of algae and fungus.

In a solid state, the product must not exhibit any unpleasant or foreign smells or odours.

2.5 Recycling/Disposal

The product must display clear instructions for the disposal of containers and paint residues as well as the cleaning of the tools used.

2.6 Environmental Indicator Thresholds

The product manufacturing process for all products within this product group must comply with the following environmental indicators:



Award Guideline GL 0604 MINERAL-BASED EXTERIOR WALL PAINTS

Version: July 2017

Page 4 of 8

Environmental Indicator per m ²	Threshold ¹
Primary energy input of non-renewable resources without feedstock (PENRE ²) [MJ]	18
Prim. energy input of non-renewable & renewable total resources (PET ³) [MJ]	20
Photochemical ozone creation potential (POCP) [kg Ethylene-equiv.]	0.00075
Acidification potential (AP) [kg SO ₂ -equiv.]	0.005
Eutrophication potential (EP) [kg PO ₄ ³⁻ -equiv.]	0.002
Global-warming potential (GWP) [kg CO ₂ equiv.]	0.9
Abiotic depletion potential (ADP) [kg Sb equiv.]	0.00000075

If a single threshold value is exceeded, it will be decided on a case by case basis whether this is permissible for the purpose of optimising the complete product manufacturing process.

¹Test methods: Calculation of the environmental indicators according to the natureplus® Standard Operating Procedures for LCA's; Inventory analysis analogue to ISO 14040ff; Impact categories in accordance with CML-IA Version 4.1 from October 2012, designated as "baseline"; Primary energy demand according to Frischknecht 1996; Global warming potential 1994/100 years; System boundaries: from the extraction/harvesting of the raw material(s) to the delivered product

² PENRE: **P**rimary **E**nergy input of **N**on-**R**enewable **E**nergy resources without the non-renewable primary energy source used as the raw material

³ PET: **P**rimary **E**nergy inputs of renewable and non-renewable **T**otal resources without the non-renewable primary energy source used as the raw material (energetic use)

2.7 Declaration

The product packaging should display a full declaration (in English or in the national language) of the input materials listed, analogue to the EU-Cosmetic Regulations, according to the declining mass percentage. If it is not possible to display this information directly on the product packing, it should be provided with the product in a technical datasheet or sales leaflet. If prefabricated products or formulations are used as input substances and the proportion present in the final product is >0.1%, then all the substances used within these must also be included in the declaration.

The following applies to the naming the input materials as part of the declaration:

- More than 1 M-% - designation of the substance in question



Award Guideline GL 0604

MINERAL-BASED EXTERIOR WALL PAINTS

Version: July 2017

Page 5 of 8

- Less than 1 M-% - at least a functional designation

Furthermore, it is obligatory to provide the following information in a suitable form to the consumer or user (e.g. online):

- Instructions for processing, use and safety precautions
- Instructions for storage and disposal
- Batch numbers
- Location and country of manufacture of the product

If components are employed which are potentially environmentally damaging, the manufacturer must provide, in an appropriate place, information on the environmental protection measures to be taken during removal and demolition (i.e. controlled deconstruction).

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

- Spreading rate / Coverage in m² / Litre
- Shelf life, storage properties, necessary storage conditions

2.8 Packaging

The packaging used must be recyclable. The manufacturer must participate in a recycling system if there is one for the corresponding material.

Paper and cardboard packaging must be made from recycled paper. Alternatively, paper from sources as per GL-5002 is permitted.

Plastic packaging must be manufactured from polyolefins. In cases when sufficient grounds can be presented, the use of PET, polystyrene or polycarbonates may be permitted. Packaging made from PVC is generally not permitted.

Packaging must not contain biocides.

Upon award of a natureplus certification, the natureplus Eco-label logo must be printed/displayed on the packaging.

3. Laboratory Tests

For the general laboratory tests, a white, uncoloured paint will be analysed. For the element analysis, additional coloured products will be tested. If pigments are employed which contain chromium, a sample of the pigment will be tested for chromates. The concentration of harmful substances contained must not exceed the limits listed below.

3.1 VOC - TVOC

This guideline is only applicable to paints which are approved for exterior applications. For this reason the analyses of the interior room parameters VOC – TVOC are not included. Should the product however be intended for use in interior applications it must be certified according to award guideline GL 0602.

3.2 Element Analyses

In order to assess the content levels of problematic elements and undesirable contaminants, the white, uncoloured product will be subject to an element analysis. The product must comply with the specified threshold limits. The corresponding analysis will be conducted in accordance with the current version of test method TM-02 Metals. In addition, a coloured sample and/or a mixed sample will be analysed. The method for the selection of the mixed sample is stated in the appendix. If a large number of pigment groups must be tested an appropriate analysis plan, with numerous analyses, may be implemented.

Element	Threshold	Unit
Arsenic (As)	≤ 5	mg/kg
Cadmium (Cd)	≤ 0.5	mg/kg
Cobalt (Co)	≤ 20	mg/kg
Lead (Pb)	≤ 15	mg/kg
Mercury (Hg)	≤ 0.1	mg/kg
Nickel (Ni)	≤ 10	mg/kg
Tin (Sn)	≤ 10	mg/kg



Award Guideline GL 0604 MINERAL-BASED EXTERIOR WALL PAINTS

Version: July 2017

3.3 Other Analyses (In-can)

Test parameters	Threshold	Unit	Method
Halogenic organic compounds: AOX/EOX	≤ 1	mg/kg	TM-03 Halo
Aromatic Hydrocarbons (total)	≤ 20	mg/kg	TM-06 Aromatic hydrocarbons
CMR ⁽¹⁾ - individual aromatics	≤ 2	mg/kg	TM-06 Aromatic hydrocarbons
Total VOC (TVOC)	≤ 500	mg/kg	TM-15 TVOC (Headspace)
Monomer Acrylates	≤ 10	mg/kg	TM-18 Residual monomers
Phthalate Ester ⁽²⁾	≤ 1	mg/kg	TM-17 Softeners
Free Formaldehyde	≤ 20	mg/kg	TM-19 Free formaldehyde

⁽¹⁾ C = carcinogenic; M = mutagenic; R = toxic for reproduction; classified according to the German Prohibited Chemical Substances Regulations (GefStoffV)

⁽²⁾ According to VdL Guideline 01 - If required (VdL – German Paint Industry Federation)

Test Methods

TM-02 Metals: ICP-MS measurement according to DIN EN ISO 17294-2. Supplemented by the natureplus Standard Operating Procedures and the appropriate sample preparation.

TM-03 Halo: Halogenic organic compounds determined through controlled combustion and microcoulometry in accordance with the natureplus Standard Operating Procedures "AOX/EOX"

TM-04 Odour: natureplus Standard Operating Procedures "Odour/Smell Test", 6-stage marking scale, 24 h after loading the testing chamber

TM-17 Softeners: Solvent extraction and GC/MS

TM-18 Residual monomers: Headspace GC/MS analogue to EN ISO 17895

TM-19 Free formaldehyde: Acetylacetone method (VdL-RL 03 – German Paint Industry Federation Guideline 03)

TM-21 Azo colorants: Determination in accordance with the official collection of analysis methods specified in §64 German Food and Feed Code (LFGB), procedure BVL-B 82.02-2 of the German Federal Office of Consumer Protection and Food Safety (BVL) "Analysis of consumer goods; Textiles -- Methods for determination of certain aromatic amines derived from azo colorants"

TM-29 Chromium VI: Eluate analysis according to TRGS 613



Award Guideline GL 0604
MINERAL-BASED EXTERIOR WALL PAINTS
Version: July 2017

Page 8 of 8

Appendix: Coloured Products – Pigment pastes

In addition to uncoloured products, factory-coloured products or pigment pastes are also available for the processor to pigment the uncoloured product themselves. In order to ensure the validity of the natureplus Eco-label for the complete product pallet, the manufacturer must supply the following information.

- 1.) The manufacturer shall compile a list of all system-related products (coloured products, pigment pastes etc.)
- 2.) In the case of factory-coloured products in which compounds have been added to the base product, a declaration of the percentage of these compounds contained in the end-product must be provided.
- 3.) Input components contained in the pigment pastes that constitute a proportion > 5 % must be declared together with the percentages of the input components in the paste. In addition, the highest recommended application quantity of the paste must be stated.
- 4.) The pigments are declared by means of the respective CAS-number. If a distinct C.I.- number exists, this may also be used in the evaluation.

The manufacturer's information will be evaluated and analysed according to the following criteria.

- A.) The pigment pastes must not contain any substances that are restricted according to GL 5001.
- B.) All additives which are not used to incorporate the pigment into the base paint are prohibited. This applies in particular to the addition of artificial binders (Acrylates).
- C.) The proportion of solvents contained in the paste is restricted to a value that does not exceed a value of 5 % of the highest application quantity in the pigment.
- D.) Any mineral pigments which constitute a proportion of $\geq 10\%$ of the end-product will be tested for heavy metals in accordance with section 3.2. The pigments are grouped on the basis of the core metal. As a rule, this will usually be iron, copper or chromium. A mixed sample from the group is satisfactory for the analysis. If more than 5 colours are present in a mixed sample, it will be divided into a multiple of mixed samples.
- E.) If pigments are employed which contain chromium, pigment samples must be taken during the factory on-site inspection. These pigments will be individually tested for the leaching of chromates. The threshold limit for the pigment must not be exceeded.

Test parameter	Threshold	Unit	Method
Chrome VI (Cr VI)	≤ 2	mg/kg	TM-29 Chromium VI