

natureplus e.V.

Award Guideline 0806

Insulating Plaster/Render

Issued: June 2015

For the Awardance of the Eco-Label





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1. Application Areas

The following criteria contain the requirements for the awardance of the natureplus eco-label for factory produced insulation plaster/render for interior and exterior applications.

2. Award Criteria

The prerequisite for the awardance of the natureplus eco-label is the fulfilment of the basic criteria GL-0000, of the chemicals directive GL-5001 and of the guideline for facility inspections GL-5004.

2.1 Suitability of Application

Insulating plasters/renders must fulfil the requirements of EN 988-1. Gypsum based insulating plasters/renders must comply with the requirements of EN 13279. The cement employed must comply with EN 197 or a comparable standard. The lime employed must comply with EN 459-1 or a comparable standard. Insulating plasters/renders should exhibit the following characteristics:

- Thermal conductivity $\lambda \leq 0.13 \text{ W}/(\text{m} \times \text{K})$
- Capillary water absorption coefficient $\leq 0.40 \text{ kg}/\text{m}^2 \times \text{min}^{0.5}$ (as per EN 1015-18 cf. EN 998-1 category W1)

The following additional requirements apply to insulating plasters/renders which are to be used in interior areas

- Water vapour diffusion resistance number $\mu < 15$ according to EN 1015-19, as long as this does not conflict with the characteristics of the application area i.e. damp locations and moisture prone areas/rooms (with the exception of residential kitchens and bathrooms).
- Compression resistance $\geq 0.4 \text{ N}/\text{mm}^2$. Products suitable for subsequent tiling must exhibit a minimum compression resistance $\geq 2.0 \text{ N}/\text{mm}^2$.

The manufacturer must provide documentary evidence of compliance with aforementioned standards.

2.2 Composition, Forbidden Substances, Substance Restrictions

The proportion of mineral and/or renewable raw materials contained within the product must be at least 99 M-% based upon the product weight. The following components are permitted: mineral binding agents such as cement, hydrated lime, gypsum or trass-lime, as well as sand and mineral or renewable raw material lightweight aggregates. The proportion of synthetic organic components within the product is restricted to a maximum of 1 M-% of the product. The use of



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biocides and halogen-organic compounds is prohibited. The following substances must not be added to the product:

- glycol ether and esters
- APEOs (alkylphenol ethoxylates)
- halogenated isothiazolinones
- formaldehyde releasing substances

Products containing cement must be low in chromate as per TRGS 613.

Only pigments prepared from iron oxides or anorganic substances with comparable or less toxicity may be added to the product. Pigments posing ecological and toxicological problems prohibited as per GL-5001, e.g. Naples yellow or metal compounds, are not permitted.

The product is subject to laboratory analyses as laid down in section 3 and has to comply with the limit values stated therein. If renewable or secondary materials are used the product may, if required, be tested for material specific parameters.

2.3 Raw Material Sourcing, Production of Preliminary Products, Production

A certificate of the origin and quality of the mineral and renewable raw materials must be provided. In particular, it must be ensured that the secondary raw materials are of a consistent quality level.

If mineral raw materials are used, the requirements of GL-5003 must be complied with. Evidence of compliance needs to be provided. If titan dioxide is employed, it must correspond with EU-GL 92/112/EWG.

If cement is employed as a binding agent, the cement manufacturer must provide confirmation that the following requirements have been met:

- The cement production equipment must meet modern standards of energy efficiency for the ovens and for the flue gas cleaning equipment.
- If waste products are also incinerated, the emissions must comply with the guideline 2000/76/EG of 4. December 2000 concerning the incineration of waste - Point II.1 "Special Regulations for Cement Ovens in which Waste Products are Incinerated"

If gypsum is employed as a binding agent, the manufacturer must provide proof that the following requirements have been met:

- Particular consideration of the need to protect the natural environment and biodiversity in the extraction of natural gypsum.
- The use of suitable secondary raw materials (e.g. flue gas desulphurisation (FGD)-gypsum, industrial gypsum, recycled production and building-site waste).



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Proof must be provided of compliance with statutory regulations relating to the extraction of the natural, mineral raw materials for the binding agent(s). Documentation on the energy consumption levels and emission analyses must be provided in order that they can be confirmed. For renewable raw materials, proof must be provided that regionally available or secondary raw materials (e.g. production waste) have been used.

2.4 Usage

The product must not exhibit any unpleasant or foreign smells or odours.
The emissions during use have to be in compliance with the limit values according to section 3.

2.5 Recycling/Disposal

The components must be suitable for disposal in an inert materials disposal site/facility according to the “Decision of the EU council of the 19th December 2002 on the definition of criteria and procedures for the receipt and acceptance of waste products at waste disposal sites according to article 16 and appendix 2 of the guideline 1999/31/EG”.

2.6 Ecological Parameters

The manufacturing of all products of this product group must be in compliance with the ecological parameters listed below.

Ecological parameters per m ² x cm	Guide values ¹
Primary energy input of non renewable total resources (PENRE ²) [MJ]	30
Primary energy input of non renewable and renewable total resources (PET ³) [MJ]	35
Photochemical ozone creation potential (POCP) [kg ethylen-equiv.]	0,001
Acidification potential (AP) [kg SO ₂ -equiv.]	0,008
Eutrophication potential (EP) [kg PO ₄ ³⁻ -equiv.]	0,0035
Global-warming potential (GWP) [kg CO ₂ equiv.]	3
Abiotic depletion potential (ADP) [kg Sb equiv.]	0,0000011



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If a single guide 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.

¹Testing method: Calculation of the ecological parameters according to natureplus® implementing provisions for life cycle assessments; inventory analysis analogous to ISO 14040ff; efficiency categories according to CML-IA version 4.1 from October 2012 and characterised as baseline; primary energy requirement according to Frischknecht 1996; global-warming potential 1994/100 years; system limits: raw material sourcing to products ready for shipment

² PENRE: **p**rimary **e**nergy input of **n**on renewable **e**nergy resources

³ PET: **p**rimary **e**nergy inputs of renewable and non renewable **t**otal resources

2.7 Declaration

The product packaging should display a full declaration 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 (in English or in the national language). If intermediate/preliminary products or formulations are used as input substances and the proportion present in the final product is >0.1 M-%, then all the substances used within these must also be taken into account for the declaration.

For naming the input materials as part of the declaration the following applies:

- More than 1 M-% - designation of the substance in question
- Less than 1 M-% - at least a functional designation (e.g. "moth proofing agent")

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

- Instructions for use and safety precautions
- Indications for storage and disposal
- Batch numbers
- City/town and country of production
- Indication of geographical origin of the key input material

When employing components with a potential for environmental hazard, the manufacturer has to suitably indicate measures to be taken to ensure environmental protection during removal and demolition (i.e. controlled deconstruction).

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



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- Requirements of EN 998-1 and 13279
- Information to the guarantee terms and guarantee period
- Minimum durability
- Consumption data
- Disposal of packaging
- Details of the main binding agent and the lightweight aggregates
- Details of the vapour diffusion resistance according to EN 1015
- Details of the compression resistance according to EN 988-1

2.8 Processing and Installation

The manufacturer must provide qualified processing/usage guidelines which contain comprehensive details on the correct methods of preparation and application with respects to structural aspects. In particular, the processing/usage instructions should include:

- Measures for the correct preparation of the foundation substrate.
- Recommendations on the correct coating sequence and/or constructions in relation to the compressive strength and water vapour diffusion characteristics.
- Advice on measures to avoid the formation of cracks in the finishing coating.

Products containing cement must comply with the requirements of EU-RL 2003/53/EG.

2.9 Packaging

The packaging used must be recyclable. The manufacturer must be 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 comprised from polyolefins. PET, polystyrene or polycarbonates are allowed exceptionally in reasonable cases. Packaging made from PVC is generally not permitted.

Packaging must not contain biocides.

The natureplus certification mark has to be printed on the packaging after the awardance of the product.

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 site inspection. If the sample collection can not 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 VOC - TVOC

The product is subject to a test-chamber examination to survey the emissions of VOC and to determine both TVOC and TSVOC. Measurements occur after 3 and 28 days. When low VOC emissions are to be expected, the emissions test can be terminated early, if a measurement 7 days after loading of the test chamber does not object to this. The test-chamber examination is performed according to the current version of the test method TM-01 VOC.

Emission measurement after 3 days

Test parameters	Limits	Unit
VOC (VOC, VVOC, SVOC) classified in: Regulations (EC) No. 1272/2008: categories Carc. 1A und 1B, Muta 1A und 1B, Repr. 1A und 1B; TRGS 905: K1, K2, M1, M2, R1, R2; IARC groups 1 u. 2A; DFG MAK-list III1, III2	< 1	$\mu\text{g}/\text{m}^3$
Total volatile organic compounds (TVOC)	≤ 3000	$\mu\text{g}/\text{m}^3$

Emission measurement after 28 days

Test parameters	Limits	Unit
Total volatile organic compounds (TVOC)	≤ 300	$\mu\text{g}/\text{m}^3$
of which:		
Total bicyclic terpenes	≤ 200	$\mu\text{g}/\text{m}^3$
Total sensitising substances per MAK IV, BgVV-list cat. A, TRGS 907	≤ 100	$\mu\text{g}/\text{m}^3$
Total VOC (VOC, VVOC, SVOC) classified in: Regulation (EC) No. 1272/2008: Kategorie Carc. 2, Muta 2, Repr. 2; TRGS 905: K3, M3, R3; IARC: group 2B; DFG MAK-list: III3	≤ 50	$\mu\text{g}/\text{m}^3$

Total aldehyde, C4-C11, acyclic, aliphatic	≤ 100	µg/m ³
Styrene	≤ 10	µg/m ³
Methylisothiazolinone (MIT)	< 1	µg/m ³
Benzaldehyde	≤ 20	µg/m ³
Total (VOC) without non-identified compounds	≤ 100	µg/m ³

A calculation of the r-value is performed. The limit value is ≤ 1.

Other emission measurements after 28 days

Test parameters	Limit values	Unit
Total semi-volatile organic compounds (TSVOC)	≤ 100	µg/m ³
Formaldehyde	≤ 24 ⁽¹⁾	µg/m ³
Acetaldehyde	≤ 24 ⁽¹⁾	µg/m ³

⁽¹⁾ 24 µg/m³ ≈ 0,02 ppm

Termination criteria:

The emissions test can be terminated 7 days after loading the test chamber, if the values measured at this time are lower than 50% of the 28-day threshold limits.

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.

Element analysis after hydrolysis

Element	Limit value	Unit
Arsenic (As)	≤ 10	mg/kg
Cadmium (Cd)	≤ 1	mg/kg
Chromium (Cr)	≤ 50	mg/kg
Cobalt (Co)	≤ 20	mg/kg
Copper (Cu)	≤ 35	mg/kg
Mercury (Hg)	≤ 0,5	mg/kg

Nickel (Ni)	≤ 40	mg/kg
Lead (Pb)	≤ 15	mg/kg
Antimony (Sb)	≤ 5	mg/kg
Tin (Sn)	≤ 5	mg/kg
Zinc (Zn)	≤ 300	mg/kg

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. 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.

Eluate analysis

Element	Limit value	Unit
Arsenic (As)	≤ 0,05	mg/l
Barium (Ba)	≤ 2	mg/l
Cadmium (Cd)	≤ 0,005	mg/l
Chromium (Cr)	≤ 1	mg/l
Cobalt (Co)	≤ 0,1	mg/l
Mercury (Hg)	≤ 0,001	mg/l
Nickel (Ni)	≤ 0,2	mg/l
Lead (Pb)	≤ 0,04	mg/l

3.3 Other Analyses

Test parameters	Limit values	Unit	Method
Chromium VI (Cr VI)	≤ 1	mg/kg	TRGS 613
Halogenic organic compounds: AOX/EOX	≤ 1	mg/kg	TM-03 Halo
Polycyclic aromatic hydrocarbons	≤ 0,003	mg/l	DIN 38407 part 18
Phenol	≤ 0,02	mg/l	DIN 38407 part 19

Asbestos fibres	asbestos free per DAB ⁽¹⁾		REM
pH value	≤ 12,75		ISO 10390
Odour	≤ 3	Odour intensity	TM-04 Odour
Total pesticides	≤ 1	mg/kg	TM-05 Pesticides
Individual pesticides			
Organochlorine pesticides: Aldrin, Chlordane, DDD, DDE, DDT, Dichlofluanid, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Lindane, Pentachlorophenol			
Organophosphate pesticides: Dimethoat, Fenthion, Parathion-methyl, Parathion-ethyl, Phosalon	≤ 0,5	mg/kg	TM-05 Pesticides
Pyrethroids: Cypermethrin, Lambda-Cyhalothrin, Permethrin			
Other: Benomyl, Carbendazim, Prochloraz			
Radioactivity			
Artificial radioactivity Cs-137	not measurable		
Natural radioactivity: total avalue according to ÖNORM S 5200	≤ 0,75	Bq/kg	

⁽¹⁾ DAB: German Register of Medicines

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".



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TM-04 Odour: natureplus implementation rules "odour intensity", 6-degree grading scale 24h after loading the test chamber

TM-05 Pesticides: DFG S 19 supplemented with the natureplus implementation rules.