



natureplus e.V.

Guideline 1201

Linoleum Floor Coverings

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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 criteria contain the requirements for the awardance of the natureplus eco-label for the product group "Linoleum floor coverings". This award guideline is to be applied exclusively to the named products. Composite materials, e.g. floor covering including cork, foam-backed carpeting or hard-fibre matting are outside the scope of this guideline.

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-5004 Transparency and Social Responsibility
- GL-5010 Low-emission building products
- GL-5020 Climate compatibility and energy efficiency

2.1 Functional Suitability

Floor coverings made from linoleum must satisfy the minimum requirements listed below. The manufacturer must provide proof that the product complies with these requirements by submitting appropriate test results and expert assessments.

- Minimum requirements as per EN 548
- Resilience to casters as per EN 425 (caster chair test)
- Color-fastness and resistance to fading as per ISO 105 - B02 \geq level 6
- Electrostatic build-up (static electrical propensity) as per DIN EN 1815 must be \leq 2.0 kV

2.2 Composition, Forbidden Substances, Substance Restrictions

The proportion of renewable raw materials and mineral raw materials in the product must be at least 98%.

The use of arsenic-, lead-, cadmium-, or mercury compound additives is prohibited. This applies in particular to catalysts (used for accelerating the processes of auto-oxidation or hardening) and to color pigments.

The use of organic halogen compounds is not permitted.

Surface-coating materials must be free of aromatics (\leq 0.1%) and free of tensides based on alkylphenol ethoxylates (APEO). They must not contain any organic halogen compounds or cobalt compounds (desiccants) that are classified in and prohibited under Section 2.6 of the Basic Criteria(Award Guideline RL0000).

The use of colourants that might release carcinogenic aryl amines, as per the German Food and Commodities Ordinance, Appendix I, No. 7 (BGVO), are prohibited.

Biocides (e.g. triclosan) 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.

2.3 Raw Material Sourcing, Production of Preliminary Products, Production

A proof of origin must be supplied for any flax plant materials employed.

It is forbidden to use synthetic pesticides/herbicides containing active ingredients which are prohibited according to the German Prohibited Chemical Substances Regulations (GefStoffV) or according to the Stockholm Convention (POP's - Persistent Organic Pollutants); as environmentally dangerous (N) according to the German Prohibited Chemical Substances Regulations (GefStoffV); those in Class I according to the World Health Organisation (WHO) or classified as carcinogenic, mutagenic or detrimentally affecting fertility (CMR Cat 1-3 according to TRGS 905 (German Technical Regulations for Dangerous Substances) and CMR Cat 1, 2A and 2B according to IARC). Furthermore compounds based upon arsenic or mercury are forbidden.

The product undergoing certification will be subject to an analysis for pesticides and heavy metals and must meet the threshold limits as laid down in section 3 (Laboratory Tests). An additional test for persistent organic pollutants (POP) will be undertaken where flax plants from outside the European Union have been used.

Any titanium dioxide used must have been produced as per EU directive 92/112/EEC.

During the course of production, the atmospheric emissions of volatile organic compounds (VOC) must be less than 2 g / m² of the floor covering.

The maturing period must be of a sufficient length to ensure that all products comply with the emission tolerances specified for the test chamber examinations as per Section 3.

2.4 Usage

The product must not exhibit any unpleasant or foreign smells or odours. Furthermore it must be a very low-emission product. The products will be subject to an odour/smell test and an emissions test for volatile organic compounds (VOC), according to section 3 and must fulfil the specified thresholds contained therein.

2.5 Recycling/Disposal

Indications for recycling or suitable disposal are to be attached to the product.

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

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 packaging, 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 using ingredients with an environmentally hazardous potential, the manufacturer 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.

- Suitability for classes as per EN 685
- Specifications as per the relevant standard (EN 548, EN 687, or EN 688)
- Colour-fastness and resistance to fading as per ISO 105-B02
- Thermal resistance as per DIN 52612
- Fire resistance class as per DIN 4102 / DIN EN 9239-1 / DIN EN 11925-2 / DIN EN 13501-1
- Electrical resistance as per EN 1081 and the static electrical propensity as per EN 1815
- Resilience to casters grading as per EN 425
- Resistance to cigarette burns as per EN 1399 and to chemical action as per EN 423
- Floor-laying instructions
- Full-surface adhesion: recommendation of an adhesive certified by natureplus or at least one low-emission adhesive as per EMICODE ECI or equivalent
- Cleaning advice and routine care instructions: At least product that complies with the substance restrictions and prohibitions as per GL-5001 and with the requirements for declarations according to the product guideline must be recommended.
- Composition of any surface-coating material(s) used

2.8 Processing and Installation

No further requirements in this section.

2.9 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 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 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

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	Limit value [mg/kg]
Arsenic (As)	≤ 1
Cadmium (Cd)	≤ 1
Cobalt (Co)	≤ 1
Chromium (Cr)	≤ 5
Kupfer (Cu)	≤ 50
Mercury (Hg)	≤ 0,1
Nickel (Ni)	≤ 1
Lead (Pb)	≤ 15
Antimon (Sb)	≤ 1

3.3 Other Analyses

Halogenic organic compounds

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

Carcinogenic amines from azo-dyes

Analysis only for coloured or printed products.

Test parameters	Limit values	Unit	Method
Carcinogenic amines from azo-dyes	≤ 10	mg/kg	according to LFGB

Odour

Test parameters	Limit values	Unit	Method
Odour	≤ 3	Odour intensity	TM-04 Odour

Pesticides

Test parameters	Limit values	Unit	Method
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 Pyrethroids: Cypermethrin, Lambda-Cyhalothrin, Permethrin Other: Benomyl, Carbendazim, Prochloraz	≤ 0,1	mg/kg	TM-05 Pesticides

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

