natureplus e.V.

Award Guideline 1201

Linoleum Floor Coverings

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For the Awardance of the Eco-Label

1. 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

A pre-requirement for the awardance of the natureplus eco-label is the fulfilment of the Basic Criteria RL 0000.

2.1 Suitability of Application

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 ≥ level 6
- Electrostatic build-up (static electrical propensity) as per DIN EN 1815 must be ≤ 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 (≤ 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).

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The use of colourants that might release carcinogenic aryl amines, as per the German Food and Commodities Ordinance, Appendix 1, No. 7 (BGVO), are prohibited.

Biocides (e.g. triclosan) are not permitted.

The product will be subject to an analysis for heavy metals and metalloids and EOX (extractable organic halides) and must meet the threshold limits as laid down in section 3 (Laboratory Tests).

2.3 Raw Material Sourcing, Production of Preliminary Products, Production

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

It 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 1 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

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

Ecological parameters per m²	Guide values[1]
Primary energy input of non renewable total resources (PENRE[2]) [MJ]	80
Primary energy input of non renewable and renewable total resources (PET[3]) [MJ]	100
Photochemical ozone creation potential (POCP) [kg ethylen-equiv.]	0,003
Acidification potential (AP) [kg SO_2-equiv.]	0,03
Eutrophication potential (EP) [kg PO_4^{3-}-equiv.]	0,015
Global-warming potential (GWP) [kg CO_2 equiv.]	6
Abiotic depletion potential (ADP) [kg Sb equiv.]	0,000005

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.

[1]Testing 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 **r**enewable **e**nergy resources

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

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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.

- 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 EC1 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 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, SVOC and other volatile compounds and to check compliance with the limit values. Measurements usually 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.

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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	**µg/m³**
Total volatile organic compounds (TVOC)	≤ 3000	**µg/m³**

Emission measurement after 28 days

Test parameters	Limits	Unit
Total volatile organic compounds (TVOC)	≤ 300	**µg/m³**
of which:		
Total bicyclic terpenes	≤ 200	**µg/m³**
Total sensitising substances per MAK IV, BgVV-list cat. A, TRGS 907	≤ 100	**µg/m³**
Total VOC (VOC, VVOC, SVOC) classified in: Regulation (EC) No. 1272/2008: Categorie Carc. 2, Muta 2, Repr. 2; TRGS 905: K3, M3, R3; IARC: group 2B; DFG MAK-list: III3	≤ 50	**µg/m³**
Total aldehyde, C4-C11, acyclic, aliphatic	≤ 100	**µg/m³**
Styrene	≤ 10	**µg/m³**
Methylisothiazolinone (MIT)	< 1	**µg/m³**
Benzaldehyde	≤ 20	**µg/m³**
Total (VOC) without non-identified compounds	≤ 100	**µg/m³**

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

Other emission measurements

Test parameters	Limit values	Unit
after 24 hours		
Monomeric isocyanates TDI, HDI	≤ 1	**µg/m³**
Monomeric isocyanates MDI[(2)]	≤ 2	**µg/m³**

after 28 days		
Total semi-volatile organic compounds (TSVOC)	≤ 100	**µg/m³**
Formaldehyde	≤ 36 (1)	**µg/m³**
Acetaldehyde	≤ 36 (1)	**µg/m³**

(1) 36 µg/m³ ≈ 0,03 ppm (2) if binding agents based on polymeric MDI are used

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	Limit value	Unit
Arsenic (As)	1	mg/kg
Cadmium (Cd)	1	mg/kg
Cobalt (Co)	1	mg/kg
Chromium (Cr)	5	mg/kg
Copper (Cu)	50	mg/kg
Mercury (Hg)	0,1	mg/kg
Nickel (Ni)	1	mg/kg
Lead (Pb)	15	mg/kg
Antimony (Sb)	1	mg/kg

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3.3 Other Analyses

Test parameters	Limit values	Unit	Method
Halogenic organic compounds: AOX/EOX	≤ 1	**mg/kg**	TM-03 Halo
Carcinogenic amines from azo-dyes(1)	≤ 10	**mg/kg**	according to LFGB
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 Pyrethroids: Cypermethrin, Lambda-Cyhalothrin, Permethrin Other: Benomyl, Carbendazim, Prochloraz	≤ 0,5	**mg/kg**	TM-05 Pesticides

(1) in case of suspicion

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

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

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