natureplus e.V.

Award Guideline 0703

Oils and Waxes

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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 oils and waxes for surface treatments.

This award guideline is to be applied exclusively to the named products. The awardance criteria for products for the care, maintenance and cleaning of wax and oil treated surfaces are dealt with in Award Guideline RL0704.

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

The manufacturer must grade the products, according to the intensity of use, into one of the following classes of operational demands:

1 Low: Occasional usage, for floor coverings e.g. Private areas – bedrooms, guest-rooms. For furniture i.e. cupboards and cabinets in private areas.

2 Medium: Continuous normal usage, for floor coverings e.g. Private areas - living-room, dining-room, study/office. For furniture e.g. tables.

3 Heavy: Intensive use, for floor coverings e.g. a hotel room, shopping centres. For furniture e.g. work-surfaces.

The product or product system must comply with the characteristics of the applicable class of operational demands as stated by the manufacturer. Proof of compliance must be provided and will be checked by natureplus if any doubts exist.

Characteristics*	Test method	Class 1	Class 2	Class 3
Chemical Resistance/Durability	DIN 68861 T.1 (+ water)	1 C (5 h)	1 C (16 h)	1 B (16 h)
Anti-slip characteristics**	DIN EN 13893 / EDIN 53131 (Leather slipper)	$\mu \geq 0,22$	$\mu \geq 0,22$	$\mu \geq 0,30$ (with polish)
Soiling tendency	IHD Work standard 427 (Institute for Wood Technology–Dresden)	1	0	0

*Reference surface Beech wood, ** for oils/waxes for flooring

2.2 Composition, Forbidden Substances, Substance Restrictions

The product must be made to at least 99% from renewable and mineral raw materials and water.

The proportion of organic solvents must not exceed a content level of 5 M-%.

Synthetic preservatives are prohibited. The following substances must not be added to the product:

- softening agents (according to VdL-GL 01)
- glycol compounds
- APEOs (alkylphenol ethoxylates)
- halogenic organic compounds
- organic tin compounds
- azo dyes resulting in carcinogenic amines
- biocides not used for in-can conservation (film preservatives)
- halogenated isothiazolinones
- formaldehyde releasing substances

The product must not be prepared with pigments and siccatives based on lead, cadmium, chrome VI and their compounds. Pigments posing ecological and toxicologial problems, e.g Naples yellow, 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 certificate of origin must be provided for all renewable raw materials. If titan dioxide is employed, it must correspond with EU-GL 92/112/EWG.

The manufacturer has to state and to place his suppliers under the obligation that no synthetic plant protecting product with agents included on the list of banned pesticides of the chemicals directive GL-5001 are used during growing, harvest, storage or transport of the renewable raw materials. Compounds based on arsenic or mercury must not be employed. Implementing the obligation and the supplier's declarations are a part of the certification procedures.

The manufacturer must also provide evidence from their suppliers that any tensides contained in the products are biologically degradable according to OECD-Tests 301 A – E.

2.4 Usage

In a solid state, 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 product must be suitable for safe disposal in a waste incineration facility.

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]	4
Primary energy input of non renewable and renewable total resources (PET[3]) [MJ]	7
Photochemical ozone creation potential (POCP) [kg ethylen-equiv.]	0,0005
Acidification potential (AP) [kg SO_2-equiv.]	0,002
Eutrophication potential (EP) [kg PO_4^{3-}-equiv.]	0,0006
Global-warming potential (GWP) [kg CO_2 equiv.]	0,35
Abiotic depletion potential (ADP) [kg Sb equiv.]	0,00000075

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

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.

- Application area according to the operational demands class as per § 2.1
- Density in g/ml
- Viscosity at 20°C; Flash point
- Spreading rate - efficiency in m²/ litre or the quantity required per coat in ml or l/m²
- Drying time
- An indication of any characteristic odours due to the addition of natural oils or resins
- Durability, storage properties, necessary storage conditions
- Information relating to the dangers of dust production in connection with the sanding of the surface or similar surface treatments and the necessary precautions.

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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.

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 after 28 days

Test parameters	Limit values	Unit
Total semi-volatile organic compounds (TSVOC)	≤ 100	**µg/m³**
Formaldehyde	≤ 24 (1)	**µg/m³**
Acetaldehyde	≤ 24 (1)	**µg/m³**

(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	Limit values	Unit
Arsenic (As)	5	mg/kg
Cadmium (Cd)	0,5	mg/kg
Cobalt (Co)	500	mg/kg
Chromium (Cr)	10	mg/kg
Mercury (Hg)	1	mg/kg
Nickel (Ni)	10	mg/kg
Lead (Pb)	10	mg/kg

3.3 Other Analyses

Test parameters	Limit values	Unit	Method
Halogenic organic compounds: AOX/EOX	≤ 1	**mg/kg**	TM-03 Halo
Aromatic Hydrocarbons (total)	≤ 30	**mg/kg**	Headspace GC/MS analog EN ISO 17895
CMR[(1)]- individual aromatics	≤ 1	**mg/kg**	Headspace GC/MS analog EN ISO 17895
Delta-3-Caren	≤ 20	**mg/kg**	Solvent extraction und GC/MS
Glykolether/-ester	≤ 20	**mg/kg**	Solvent extraction and GC/MS
Phtalate Ester	≤ 10	**mg/kg**	Solvent extraction und GC/MS
Monomer Acrylates	≤ 1	**mg/kg**	Headspace GC/MS analog EN ISO 17895

Free Formaldehyde	≤ 20	**mg/kg**	UV-Vis (VdL-RL 03) steam dest., AcAc, UV
Organic tin compounds: single values for MBT, DBT, TBT	≤ 50	**µg/kg**	
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) C = carcinogenic; M = mutagenic; R = toxic for reproduction; classified according to German Prohibited Chemical Substances Regulations (GefStoffV)

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 supplemented with the natureplus implementation rules.

Appendix

Test parameters for paints containing coloured pigments and tinting paints

If the composition of the coloured paints or tinting paints (with the exception of the colorant components) is identical to the un-pigmented / white paints, then they will only be tested for the following parameters:

- Metals and Metalloids (according to each colour)
- Carcinogenic Amines from Azo dyes/colorants (if required/suspected)

Parameter	Limit value	Unit	Method
Carcinogenic Amines from Azo dyes	≤ 10	**mg/kg**	according to LFGB

Simplified Procedure

The pigments are directly analysed for their metal content. The manufacturer must supply a list of all the pigments employed (brand name, chemical structure, CAS-number, safety data sheet). These pigments are chemically classified and combined into logical groups for mixed samples.

Content Analysis

The elements arsenic, lead, cadmium, mercury and thallium will be solubilised through complete dissolution and measured according to the natureplus implementation procedure. The decomposition of pigments based upon organic colorants is accomplished by means of a pressure digestion system using nitric acid. Pigments based upon inorganic starting compounds will be solubilised by means of a pressure digestion system using a nitric acid/hydrofluoric acid mixture.

The applicable threshold values for this analysis are calculated based upon the threshold values of this guideline for the colourless product according to the following formula:

Threshold value of the element[(2)] = (100 / divided by the number of pigments in the mixed sample) / average percental input of the colorant.

If the threshold value is exceeded, an analysis of the individual pigments must be performed.

Eluate determination

For the metals antimony, barium, chrome, cobalt, copper, nickel and tin, which are classified as harmful, the analysis of the soluble proportion is to be preferred over the analysis of the total content. The eluate is produced as per DIN EN 71 Part 3 by means of the elution method using a gastric acid-substitute solution.

(2) Threshold value Thallium 2 mg/kg. For other element limits see the table under section 3.

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