

natureplus e.V.

Award Guideline 0209

## **Wood and Wood-Based Flooring**

Issued: June 2015

For the Awardance of the Eco-Label





# Award Guideline 0209

## Wood and Wood-Based Flooring

Version: June 2015

## 1. Application Areas

The following criteria list the requirements that wood and wood-based flooring must satisfy for the product to qualify for the natureplus eco-label.

These include:

- Tongue and groove, floor boards and solid wood flooring.
- Parquet floor blocks with tongue and groove according to DIN EN 13226
- Solid wood parquet products (without tongue and groove) according to DIN EN 13227
- Solid wood parquet including parquet floor blocks with a connecting system according to DIN EN 13228
- Mosaic parquet with and without surfacing treatments according to DIN EN 13488
- Multi-layer parquet according to DIN EN 13489
- Parquet according to DIN 280, Parts 1, 2 and 5
- Wood based materials – Veneered flooring DIN EN 14354
- Others product types which deviate from the DIN norms must fulfil the minimum requirements analogue to the DIN

This award guideline must be applied exclusively to products of this description. This award guideline does not apply to composite materials, e.g. wood and wood based flooring in combination with other materials (e.g. wooden flooring with sound-proofing insulation). A separate guideline will be produced for surface treatments which are applied after the flooring has been laid. These are not included in this guideline.

## 2. Award Criteria

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

### 2.1 Suitability of Application

The product meets the requirements for the suitability of application by holding the state-specific or the European technical approval or the building inspectorate approval. If none of the approvals apply, the manufacturer has to provide evidence that all standards relevant for the product are met.

The surface layer of the products must meet the following requirements:

Product type	Total thickness	Thickness of wear layer
Solid wood flooring	Variable	A minimum of 35% of the total thickness
Parquet and multi-layer parquet	< 12 mm	Hardwood min. 2,5 mm, softwood min. 4 mm <sup>1</sup>
	> 12 mm	Hard- or softwood min. 4 mm <sup>1</sup>

<sup>1</sup> A deviation of 10% below the required surface layer thickness of 4 mm is permissible.

## 2.2 Composition, Forbidden Substances, Substance Restrictions

The proportion of renewable raw materials (including fluids) in the wood and wood based floor covering products must be at least 95 % of the mass (apparent density) of the end product.

The adhesive proportion should be kept to minimum. It must not exceed a content level of 5 M-% of the absolute dry weight of the wood/wood based material. Polyurethane/Polyurea adhesives based upon Isocyanates may only be used where they do not exceed 2 M-% of the absolute dry weight of the wood/wood-based material.

The surface sealing material must be from renewable raw materials. Modified oils are permitted if it is proven that they provide increased functionality or a longer life span. The use of UV-curing systems, which are based upon oil/petroleum-based products, is permissible if it can be proven that these do not cause harmful, product emissions.

Factory applied surface sealing materials must not contain more than 10% solvents. Sealants which contain more than 10% solvents in total may only be used under the following conditions:

1. The production facility must employ protective measures (waste air purification) which ensure that the proportion of solvents emitted is no higher than those preparation processes with a 10% solvent content.
2. The total C-content of volatile organic compounds (VOC) in the waste air must not exceed 100 mg/m<sup>3</sup> (as a half-hourly mean value in relation to the correspondingly measured O<sub>2</sub>-content).
3. The maximum allowable mass flow rate of emitted volatile organic compounds is 0.5 kg/h.
4. Proof of compliance with the statutory employee protection (Health and Safety) regulations.

The application of biozides 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.



## Award Guideline 0209 Wood and Wood-Based Flooring Version: June 2015

Page 4 of 11

### 2.3 Raw Material Sourcing, Production of Preliminary Products, Production

The requirements of the guideline GL-5002 for the origins of wood and wood production must be met for wood as a raw material.

Only the following may compose the main constituents of certified products:

- Timber species suited to the location
- Species of timber which are not excluded by the terms of the Washington Wildlife Protection Agreement
- One year old fibre plants

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 materials used. 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 demonstrate that a hazardous substance management according to national standards and regulations is available at the production facility for employee protection. Information on dust release and compliance with general dust limit values must be included therein. Where compliance with the general dust limit values or other occupational limit values cannot be guaranteed despite technical and organisational measures, personal protection equipment must be available. It must be aimed for a minimisation of avoidable burdens of the employees.

### 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.

If products with surface layers from softwood and hardwood are to be certified, it is necessary that separate emissions tests are carried out for both types of product. For products with softwood surface layers, samples with the highest number of branch knots will be selected for testing. If the emission levels for this quality grade exceed the specified limits, it is permitted to continue the certification process for the middle and high quality grades. The emissions tests will be applied to the medium quality product.

In the case that adhesive is to be applied to the complete surface, it must be possible to use a natureplus-certified adhesive or at least a low emission adhesive complying with EMICODE EC1 or comparable. The manufacturer must provide a reference to *at least one* such adhesive.



**Award Guideline 0209**  
**Wood and Wood-Based Flooring**  
 Version: June 2015

## 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 m <sup>3</sup>	Guide values <sup>1</sup>
Primary energy input of non renewable total resources (PENRE <sup>2</sup> ) [MJ]	140
Primary energy input of non renewable and renewable total resources (PET <sup>3</sup> ) [MJ]	400
Photochemical ozone creation potential (POCP) [kg ethylen-equiv.]	0,01
Acidification potential (AP) [kg SO <sub>2</sub> -equiv.]	0,04
Eutrophication potential (EP) [kg PO <sub>4</sub> <sup>3-</sup> -equiv.]	0,018
Global-warming potential (GWP) [kg CO <sub>2</sub> equiv.]	8
Abiotic depletion potential (ADP) [kg Sb equiv.]	0,000006

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.

<sup>1</sup>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

<sup>2</sup> PENRE: **p**rimary **e**nergy input of **n**on renewable energy resources

<sup>3</sup> PET: **p**rimary energy 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.

- Labelling according to the guidelines of the European Community (Communauté Européenne, CE marking) or the respective general technical approval, including a scope specification
- General data (designation, type, name, etc.)
- Surface weight [kg/m<sup>2</sup>] or density [kg/m<sup>3</sup>]
- Thickness, length and width in mm or the total length where the included lengths vary
- Wood type and origin
- Euro class according to EN 13501-1
- The packet weight
- In the case that adhesive is to be applied to the complete surface: The recommendation of a natureplus-certified adhesive or at least a low emission adhesive complying with EMICODE EC1 or comparable.



# Award Guideline 0209

## Wood and Wood-Based Flooring

Version: June 2015

Page 7 of 11

- Cleaning and maintenance 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.

Information about the avoidance of chemical wood preservation and special construction measures being a requirement for classifying wood materials as hazard class 0 (according to DIN 68800-2 or an equivalent standard) is to be provided in the form of a leaflet.

The manufacturer has to give indications regarding sufficient wood conditioning before installation.

## 2.8 Processing/Installation

The manufacturer must demonstrate whether working procedures avoiding dust release are available for the processing of the product. If this is the case, these procedures are to be recommended and suitably presented within the processing guidelines. If compliance with the general dust limit values might not be guaranteed, wearing personal protection equipment must be recommended.

## 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 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	$\mu\text{g}/\text{m}^3$
Total volatile organic compounds (TVOC)	$\leq 3000$	$\mu\text{g}/\text{m}^3$

#### Emission measurement after 28 days

Test parameters	Limits	Unit
Total volatile organic compounds (TVOC)	$\leq 300$	$\mu\text{g}/\text{m}^3$
of which:		
Total bicyclic terpenes	$\leq 200$	$\mu\text{g}/\text{m}^3$
Total sensitising substances per MAK IV, BgVV-list cat. A, TRGS 907	$\leq 100$	$\mu\text{g}/\text{m}^3$
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	$\leq 50$	$\mu\text{g}/\text{m}^3$
Total aldehyde, C4-C11, acyclic, aliphatic	$\leq 100$	$\mu\text{g}/\text{m}^3$
Styrene	$\leq 10$	$\mu\text{g}/\text{m}^3$
Methylisothiazolinone (MIT)	< 1	$\mu\text{g}/\text{m}^3$
Benzaldehyde	$\leq 20$	$\mu\text{g}/\text{m}^3$
Total (VOC) without non-identified compounds	$\leq 100$	$\mu\text{g}/\text{m}^3$



A calculation of the r-value is performed. The limit value is  $\leq 1$ .

**Other emission measurements**

Test parameters	Limit values	Unit
<b>after 24 hours</b>		
Monomeric isocyanates TDI, HDI	$\leq 1$	$\mu\text{g}/\text{m}^3$
Monomeric isocyanates MDI <sup>(3)</sup>	$\leq 2$	$\mu\text{g}/\text{m}^3$
<b>after 28 days</b>		
Total semi-volatile organic compounds (TSVOC)	$\leq 100$	$\mu\text{g}/\text{m}^3$
Formaldehyde:		
solid un-glued products	$\leq 36$ <sup>(1)</sup>	$\mu\text{g}/\text{m}^3$
glue-laminated products	$\leq 48$ <sup>(2)</sup>	$\mu\text{g}/\text{m}^3$
Acetaldehyde:		
solid un-glued products	$\leq 36$ <sup>(1)</sup>	$\mu\text{g}/\text{m}^3$
glue-laminated products	$\leq 48$ <sup>(2)</sup>	$\mu\text{g}/\text{m}^3$

<sup>(1)</sup>  $36 \mu\text{g}/\text{m}^3 \approx 0,03 \text{ ppm}$

<sup>(2)</sup>  $48 \mu\text{g}/\text{m}^3 \approx 0,04 \text{ ppm}$

<sup>(3)</sup> 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.

## Award Guideline 0209 Wood and Wood-Based Flooring Version: June 2015

Element	Limit value	Unit
Arsenic (As)	5	mg/kg
Cadmium (Cd)	0,5	mg/kg
Cobalt (Co)	100	mg/kg
Chromium (Cr)	5	mg/kg
Copper (Cu)	20	mg/kg
Mercury (Hg)	0,1	mg/kg
Nickel (Ni)	10	mg/kg
Lead (Pb)	5	mg/kg
Antimony (Sb)	1	mg/kg

If a backing layer based on chipboard or fibreboard is applied, the backing layer is tested for the following metals:

Element	Limit value	Unit
Arsenic (As)	1	mg/kg
Boron (B)	25	mg/kg
Beryllium (Be)	1	mg/kg
Cadmium (Cd)	0,5	mg/kg
Cobalt (Co)	1	mg/kg
Chromium (Cr)	2	mg/kg
Copper (Cu)	10	mg/kg
Mercury (Hg)	0,1	mg/kg
Nickel (Ni)	1	mg/kg
Lead (Pb)	10	mg/kg
Antimony (Sb)	1	mg/kg
Zirconium (Zr)	1	mg/kg

### 3.3 Other Analyses

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

### 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.