natureplus e.V.

Award Guideline 1601

Interior Doors Made from Wood and Wood-Based Materials

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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 wooden doors for interior use. These include apartment entrance doors and doors for internal rooms –with or without surface treatments. This guideline covers smooth doors made from wood-based materials (Flush doors according to DIN 68706-1) and panel doors made from laminated wood. The award guideline is to be applied exclusively to the named products.

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

Wooden doors must be classified as per EN 14351 (part 1 to 3).

The manufacturer must, through the submission of relevant documentation, prove conformity with EN14351-2 (currently in the draft stage) and through the display of the CE-label. The product must fulfil high standards relating to the mechanical stability, operating force, glazing durability (e.g. tempered glass (TG)/laminated safety glass (LSG), no Float glass). If these are not defined here, the corresponding characteristics must be expressly declared. The surfaces of all products must be suitable for maintenance/overhaul.

In addition to the standard legal requirements for apartment entrance doors (Acoustic insulation according to DIN 4109), the recommendation of increased sound-proofing (one class higher than the minimum requirement) must also be fulfilled. Apartment block doors must be intrusion resistant and, as a minimum, fulfil the standards of class WK2 according to EN-V 1627. In order to ensure the long-term functionality, apartment block doors must fulfil the requirements for behaviour between two different climates 2c according to EN 1121 (Climate class III). The operating force requirements and further requirements must also be supplemented in agreement with RAL-RG-426.

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2.2 Composition, Forbidden Substances, Substance Restrictions

The proportion of renewable raw materials (including the moisture content) of the interior doors must constitute a minimum of 95 % of the mass of the end product - fittings, lighting apertures etc. excluded. Aluminium fittings and surfaces should be avoided unless there is a technical necessity.

Constructions with cavities, e.g. honeycomb fillings, stripes and bars made from cardboard or wood materials are not permitted for quality reasons. Tubular chip inserts are admitted.

The adhesive proportion of the products should be kept to minimum. For the manufacture of the doors, it must not exceed a content level of 5 M-% of the absolute dry weight of the wood/wood-based material (this does not take into consideration the adhesive proportion in the wood-based materials employed). Permitted adhesives are first and foremost those based upon renewable raw materials and polyvinyl acetate (PVA). Adhesives based upon polyurethane/polyurea binding agents and mixed resins based upon aminoplasts and phenols are also permitted.

Only long-lasting, low-maintenance and repairable surface coatings may be used as surfacing layers. Natural wood veneers and natureplus-certified coatings are always permissible. Veneers from non-European countries must be FSC certified. The minimum thickness for veneers must be at least 1mm.

Varnishes derived from renewable raw materials, waxes, oils and modified oils are permitted as surface coating agents. Coating agents based upon acrylate and alkyl resin are also permissible. The use of UV-curing systems is permitted.

Factory-applied surface sealing/coating materials must not contain a solvent proportion of more than 10%. 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 10 mg/m^3 (as a half-hourly mean value in relation to the correspondingly measured O_2-content).
3. The mass flow rate of volatile organic compounds (VOC) emitted must not exceed a maximum of 0.5 kg/h.
4. Proof of compliance with the statutory employee protection (Health and Safety) regulations.

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The surface coating materials must not contain any halogen-organic compounds or metal compounds (desiccants) which are categorised under No. 2.6 of the Basic Criteria. All solvents must be free from aromatics (≤ 0.1%).

These surfaces are often insufficiently robust for doors which are subject to heavy wear/stresses and higher standards are demanded in the tender description. It is therefore permissible that doors for use in public buildings, schools, nurseries, hospitals, care homes, rehabilitation centres etc employ alternative surface coatings/laminates. A pre-requirement is that the doors are correctly labelled. Only the exclusive use of high performance laminate (HPL) surface coatings is permitted for use in these areas. Thin laminates and films are not permitted.

The product, including all preliminary/intermediate products must not contain any wood preservatives, flame retardants or halogen-organic compounds. The use of biocides e.g. triclosan is prohibited.

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

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

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.

In the case of the use of resin-rich softwoods (e.g. pine, Douglas fir, larch), the producer must provide evidence of suitable measures to minimise the levels of VOC's (e.g. the selection of raw materials, periodic VOC-measurements, storage/drying).

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. The guide values are for wooden interior doors including the frame, but without surface treatment.

Ecological parameters per p	Guide values[1]
Primary energy input of non renewable total resources (PENRE[2]) [MJ]	2000
Primary energy input of non renewable and renewable total resources (PET[3]) [MJ]	2700
Photochemical ozone creation potential (POCP) [kg ethylen-equiv.]	0,075
Acidification potential (AP) [kg SO_2-equiv.]	0,6
Eutrophication potential (EP) [kg PO_4^{3-}-equiv.]	0,25
Global-warming potential (GWP) [kg CO_2 equiv.]	120
Abiotic depletion potential (ADP) [kg Sb equiv.]	0,00025

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 (see also EN 14351, appendix ZA).

- General data (designation, type, name, etc.)
- Application areas
- Sound insulation
- Heat transition coefficient (for house and appartement entrance doors)
- Fire resistance class
- Resistance against burglary (for house and appartement entrance doors)
- Origin and type of wood

2.8 Processing and Installation

Processing instructions as well as maintenance and care instructions must be provided with the product.

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, 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

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)	5	mg/kg
Cadmium (Cd)	0,5	mg/kg
Cobalt (Co)	10	mg/kg
Chromium (Cr)	2	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
Tin (Sn)	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.

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