natureplus e.V.

Guideline 1601 (draft)

Interior Doors Made from Wood and Wood-Based Materials

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for the awardance of the eco-label

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 economicsustainability. 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 requiresus to undertake every effort to reduce these encroachments to the lowest level possible andto 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 healthyroom 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 305/20111: 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.

1 Application Areas

The following award criteria contain requirements for the natureplus®-ecolabel.

The object of certification according to this guideline is doors made of wood.
These include flat entrance doors and room doors, with or without surface treatment. Smooth doors made of wood-based materials (block doors according to DIN 68706-1) and framed doors (country house doors) made of laminated wood are included.

The guidelines apply exclusively to the products mentioned.

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:

- GL5001 Chemicals Directive
- GL5002 Origin of Wood and Wood Production
- GL5004 Transparency and Social Responsibility
- GL5010 Low-emission building products
- GL5020 Climate compatibility and energy efficiency

2.1 Functional Suitability

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.

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 rawmaterials 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 10mg/m3 (as a half-hourly mean value in relation to the correspondingly measured O2-content).
3. The mass flow rate of volatile organic compounds (VOC) emitted must not exceed a maximum of 0.5kg/h.
4. Proof of compliance with the statutory employee protection (Health and Safety) regulations.

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 isprohibited.

The product is subject to assessments as detailed in section 3 and must comply with the limits specified therein.

2.3 Raw Material Sourcing, Production of Preliminary Products, Production

Where wood is used as an ingredient, compliance with GL-5002 "Wood extraction and origin" must be ensured.

The applicant 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 lignocellulose based materials. Compounds based on arsenic or mercury must not be employed.

The applicant fulfils this requirement by submitting the relevant delivery specifications or supplier agreements.

In production facilities outside the European Union, the applicant must demonstrate that the production facility has a hazardous substance management system for the protection of employees that meets the relevant European standards and legal regulations. This must also include information on the release of dust and compliance with the general dust limit values. Where technical or organizational measures cannot ensure compliance with general dust limit values or other workplace limit values, suitable personal protective equipment must be provided. Efforts must be made to minimize avoidable exposure of workers.

2.4 Usage

During use, the product must not have any odor or no odor foreign to the product (see 3.3 Other analysis: Odor).

The product emissions must not exceed the natureplus requirement values for the use phase (see section 3.1 Volatile organic compounds and GL5010 Low-emission building products).

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 Reuse, recycling and 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 GL5020 are fulfilled.

2.7 Public Declaration

A public declaration of ingredients [1] (in the national language or in English) must be provided according to decreasing mass content. The public declaration of ingredients must be mentioned in one of the following publicly available documents:

- Product packaging
- Technical data sheet
- Sales brochures
- Other publicly available document

Furthermore, after succesful certification, it is mandatory to add the public declaration of ingredients to the product data set on the natureplus database.

Ingredients from preliminary products or preparations that remain in the final product with a content of >1 M% must also be included in the full declaration.

The following applies to the public declaration of ingredients:

- above 1 M% the name of the ingredient
- below 1 M% at least the functional name of the ingredient, the mass order is cancelled.

[1] Ingredients: substances and mixtures that remain in the final product. Reactants and processing aids are part of the full declaration but do not need to be publicly declared.

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 [1] of the main input material [2]

[1] Designation of countries or more specific regions

[2] Key input material: The input material with the highest proportion in the product

When using ingredients with an environmentally hazardous potential, the applicant 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 (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 belong to a recycling system, if one exists for the corresponding material.

Paper and cardboard packaging must be made from recycled paper. Alternatively, paper from sources as per GL5002 is also permitted.

Plastic packaging must be made from polyolefins. PET, polystyrene or polycarbonates are allowed exceptionally in reasonablecases.

PVC packaging is generally not permitted.

Packaging must not contain biocides.

Once awarded, the natureplus label must be printed on the packaging or made visible to the consumer in another suitable place.

3 LaboratoryTests

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.

An eluate analysis is mandatory if the required values of the content analysis are not met.

Element	Limit value [mg/kg]
Arsenic (As)	≤ 5
Cadmium (Cd)	≤ 0,5
Cobalt (Co)	≤ 10
Chromium (Cr)	≤ 2
Copper (Cu)	≤ 20
Mercury (Hg)	≤ 0,1
Nickel (Ni)	≤ 10
Lead (Pb)	≤ 5
Antimon (Sb)	≤ 1
Tin (Sn)	≤ 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

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 3 days after loading the test chamber following VDA 270:2018.

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