

natureplus e.V.

Award Guideline 0212

## **Garden (Construction) Timber**

Issued: June 2015

For the Awardance of the Eco-Label





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## 1. Application Areas

The following criteria contain the requirements for the awardance of the natureplus eco-label for garden timber (the general term for weather-resistant timber that is especially suited for usage in gardens). This is also referred to as garden construction timber. This includes timber construction components which have not been treated with chemical wood preservatives and which are subject to precipitation, water-spray /splashes or similar according to EN 335-1 (from EN 460):

- Without contact to soil, not covered over i.e. exposed to the elements (Usage class 3, Hazard class 3 according to DIN 68800-3)
- In contact with soil or fresh water (Usage class 4, Hazard class 4 according to DIN 68800-3)

The award guideline is to be applied exclusively to the named products.

Solid-timber, facade cladding is regulated in award guideline RL 0213.

Composite systems are outside the scope of 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.

Products within usage class 3 according to EN 335-1 ("Durability of wood and wood-based products - Definition of use classes") must be of at least durability class 3-4 ("moderately durable/slightly durable") according to EN 350-2.<sup>(1)</sup>

Products within usage class 4 according to EN 335-1 must be of at least durability class 2 ("durable") according to EN 350-2.

Adhesive-free timber, sawn wood, logs for construction and glued laminated timber (Glulam) must satisfy the quality requirements according to DIN 68365 ("Structural Timber for Carpentry") and according to DIN 4074 (Building Timber for Wood Building Components – Grades 1 and 2) or appropriate comparable standards.



# Award Guideline 0212

## Garden (Construction) Timber

Version: June 2015

Page 3 of 9

All structural specifications for constructions as well as timber construction components for load bearing or reinforcement applications must fulfil the usage classes in the structural calculations standard DIN 1052 or a comparable standard as well as the strength classes according to EN 338 (Structural Timber – Strength classes).

The use of thermally modified timber (TMT) for load bearing or reinforcement elements is not permitted without a suitable certificate of usage.

<sup>(1)</sup> In the building sector, both the classification of the natural durability according to EN 350-2 and, in connection with DIN 68800-3, the classification of the resistance classes according to DIN 68364 (1979) or a comparable standard must be fulfilled. For the hazard class 3, only heartwood containing polyphenols (tanning agents) which is free from sapwood and classified within the resistance classes 1 or 2 may be used. For the hazard class 4, only heartwood containing polyphenols (tanning agents) which is free from sapwood and classified within the resistance class 1 may be used.

The resistance of the timber types is no longer covered in the new issue of DIN 68364 (05-2003). DIN 68800 however refers to DIN 68364 in connection to the resistance classes. Therefore the older version (11-1979) is still valid for the building sector in Germany. Once the newest version of DIN 68800 is issued (expected in 2009) the resistance and durability of timber types contained within EN 350-2 will be the definitive classification.

## 2.2 Composition, Forbidden Substances, Substance Restrictions

The product must be made to at least 96% from renewable raw materials (including the moisture content proportion) based upon the apparent density of the product. The product must not be impregnated with chemical wood preservatives. A thermal treatment of the wood is permitted.

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  $10 \text{ mg/m}^3$  (as a half-hourly mean value in relation to the correspondingly measured O<sub>2</sub>-content).



## Award Guideline 0212 Garden (Construction) Timber Version: June 2015

Page 4 of 9

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.

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. A certificate of origin must be provided for all renewable raw materials.

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**

If the product is exclusively and expressly for use in external areas only, the emissions tests may be omitted.

### **2.5 Recycling/Disposal**

The product must be suitable for safe disposal in a waste incineration facility.



# Award Guideline 0212

## Garden (Construction) Timber

Version: June 2015

### 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]	2500
Primary energy input of non renewable and renewable total resources (PET <sup>3</sup> ) [MJ]	6000
Photochemical ozone creation potential (POCP) [kg ethylen-equiv.]	0,3
Acidification potential (AP) [kg SO <sub>2</sub> -equiv.]	0,8
Eutrophication potential (EP) [kg PO <sub>4</sub> <sup>3-</sup> -equiv.]	0,4
Global-warming potential (GWP) [kg CO <sub>2</sub> equiv.]	150
Abiotic depletion potential (ADP) [kg Sb equiv.]	0,00015

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 **e**nergy resources

<sup>3</sup> 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).



## Award Guideline 0212 Garden (Construction) Timber Version: June 2015

Page 6 of 9

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 [ $\text{kg}/\text{m}^2$ ] or density [ $\text{kg}/\text{m}^3$ ]
- Thickness, length and width in mm
- Wood type and origin
- Euro class according to EN 13501-1
- Usage class according to EN 335-1 (from EN 460)
- Durability class according to EN 350-2.
- The water content of the wood in %
- The suitability for the usage class according to DIN 1052:2004-08
- The grade indication according to DIN 4074-1:2003-06 or
- Strength class according to DIN 1052:2004-8
- Full declaration of the surface coating materials
- Any finishing treatment product recommendations must include *at least one* product that complies with the substance restrictions and prohibitions as per GL-5001 and with the requirements for declarations according to the product guideline.



## Award Guideline 0212 Garden (Construction) Timber Version: June 2015

Page 7 of 9

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 and 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 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
Boron (B)	50	mg/kg
Cadmium (Cd)	0,5	mg/kg
Cobalt (Co)	10	mg/kg
Chromium (Cr)	10	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)	5	mg/kg

### 3.2 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





**Award Guideline 0212**  
**Garden (Construction) Timber**  
 Version: June 2015

Individual pesticides			
Organochlorine pesticides: Aldrin, Chlordane, DDD, DDE, DDT, Dichlofluamid, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Lindane, Pentachlorophenol			
Organophosphate pesticides: Dimethoat, Fenthion, Parathion-methyl, Parathion-ethyl, Phosalon	≤ 0,5	<b>mg/kg</b>	TM-05 Pesticides
Pyrethroids: Cypermethrin, Lambda-Cyhalothrin, Permethrin			
Other: Benomyl, Carbendazim, Prochloraz			

## Test Methods

**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.