

natureplus e.V.

Award Guideline 0206

**Laminated Wood-Based Boards  
for Furniture and Interior Fitments**

Issued: June 2015

For the Awardance of the Eco-Label





# Award Guideline 0206

## Laminated Wood-Based Boards

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## 1. Application Areas

The following criteria contain the requirements for the awardance of the natureplus eco-label for laminated wood-based boards for furniture and interior usage.

These include:

- Chip- and particle boards of types P2 and P3 according to EN 312
- OSB-Boards of type OSB/1 according to EN 300
- MDF-Boards of types MDF and MDF.H according to EN 316 and EN 622-1 and -5
- Hard-fibre boards of types HB und HB.H according to EN 316 and EN 622-1 and -2
- Fibre Boards of types MBH, MBL, MBH.H and MBL.H according to EN 316 and EN 622-1 and -3
- Plywood boards (Veneer plywoods and blockboards) according to EN 636

This award guideline is to be applied exclusively to the named products. Solid wood boards are regulated in Award Guideline RL0205. Unfaced/non-laminated wood-based boards are covered in the Award Guidelines RL0202 "Chip- and particle boards", RL0203 "OSB-Boards", RL0204 "Plywood Boards", RL0207 "MDF-Boards – Dry process boards" and RL0208 "Hard and medium wood-fibre boards". Wooden floor coverings are regulated in Award Guideline RL0209.

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.

The minimum requirements of EN 13986 ("Wood-based panels for use in construction – Characteristics, evaluation of conformity and marking") for the individual board types must be fulfilled: The mechanical properties (such as the flexural strength, bending elasticity, transverse tensile strength and resistance to peeling/surface soundness) of products of board types P1 and P2 must satisfy the requirements of EN 312.



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The mechanical properties (such as the flexural strength of the principal axis, the flexural strength of the secondary axis, the bending elasticity of the principal axis, the bending elasticity of the secondary axis, the transverse tensile strength) and the 24h swell-density for products of OSB/1-Types must conform to EN 300.

The mechanical properties (such as the flexural strength, transverse tensile strength) for products of board types MDF, MDF.H, HB, HB.H, MBH, MBL, MBH.H and MBL.H must satisfy the requirements of EN 622. The resistance to the axial withdrawal of screws (surface) as per EN 320 must be a minimum of 200 N. For MDF-products, the resistance to peeling/surface soundness must satisfy the requirements of EN 311.

For products of board types EN 636-1 G and EN 636-2 G, the expansion and contraction of the product per % change in the moisture level must not exceed 0.1% along its length, 0.1% across its width and 0.2% in its thickness. The flexural strength ( $f_m$ ) of these products must fulfil the standards required for classification in class F3 ( $f_m = 5 \text{ N/mm}^2$ ) or better; the bending elasticity ( $E_m$ ) of these products must fulfil the standards required for classification in class E5 ( $E_m = 500 \text{ N/mm}^2$ ) or better and must exhibit a minimum compressive strength (surface)  $\sigma_D$  of  $39 \text{ N/mm}^2$ .

## 2.2 Composition, Forbidden Substances, Substance Restrictions

The requirements for the composition of the bearer material are regulated in the corresponding natureplus Guidelines (GL-0202 "Chip- and particle boards", GL-0203 "OSB-Boards", GL-0204 "Plywood Boards", GL-0207 "MDF-Boards – Dry process boards" and GL-0208 "Hard and medium wood-fibre boards").

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.



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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  $\text{O}_2$ -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.

The surface sealant materials must not contain any halogen-organic compounds or metal compounds (desiccants) which are categorised under § 2.6 of the Basic Criteria RL0000. All solvents must be free from aromatics ( $\leq 0.1\%$ ).

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.

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

The requirements for the declaration of the bearer material are regulated in the corresponding natureplus Guidelines (GL-0202 "Chip- and particle boards", GL-0203 "OSB-Boards", GL-0204 "Plywood Boards", GL-0207 "MDF-Boards – Dry process boards" and GL-0208 "Hard and medium wood-fibre boards").

The product manufacturing process must be organised in such a manner that the ecological indicators relating to the individual bearer materials as regulated in the corresponding natureplus Guidelines (GL-0202 "Chip- and particle boards", GL-0203 "OSB-Boards", GL-0204 "Plywood Boards", GL-0207 "MDF-Boards – Dry process boards" and GL-0208 "Hard and medium wood-fibre boards") are complied with for the whole product.

## 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.

## 2.5 Recycling/Disposal



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

## 2.6 Ecological Parameters

The ecological indicators relating to the individual bearer materials as regulated in the corresponding natureplus Guidelines (GL-0202 "Chip- and particle boards", GL-0203 "OSB-Boards", GL-0204 "Plywood Boards", GL-0207 "MDF-Boards – Dry process boards" and GL-0208 "Hard and medium wood-fibre boards") and need to be met by the whole product.

## 2.7 Declaration

The requirements for the declaration of the bearer material are regulated in the corresponding natureplus guidelines (GL-0202 "Chip- and particle boards", GL-0203 "OSB-Boards", GL-0204 "Plywood Boards", GL-0207 "MDF-Boards – Dry process boards" and GL-0208 "Hard and medium wood-fibre boards").

In addition to the requirements contained therein, the following information is to be provided with the product in a form which is suitable for the consumer and/or user:

- Type and quality of the surface and intermediate ply veneers
- Type of surface treatment/surface coating agent

## 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.



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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/m <sup>3</sup>
Total volatile organic compounds (TVOC)	≤ 3000	µg/m <sup>3</sup>

##### Emission measurement after 28 days

Test parameters	Limits	Unit
Total volatile organic compounds (TVOC)	≤ 300	µg/m <sup>3</sup>
of which:		

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Total bicyclic terpenes	≤ 200	µg/m <sup>3</sup>
Total sensitising substances per MAK IV, BgVV-list cat. A, TRGS 907	≤ 100	µg/m <sup>3</sup>
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	≤ 50	µg/m <sup>3</sup>
Total aldehyde, C4-C11, acyclic, aliphatic	≤ 100	µg/m <sup>3</sup>
Styrene	≤ 10	µg/m <sup>3</sup>
Methylisothiazolinone (MIT)	< 1	µg/m <sup>3</sup>
Benzaldehyde	≤ 20	µg/m <sup>3</sup>
Total (VOC) without non-identified compounds	≤ 100	µg/m <sup>3</sup>

A calculation of the r-value is performed. The limit value is ≤ 1.

### Other emission measurements

Test parameters	Limit values	Unit
<b>after 24 hours</b>		
Monomeric isocyanates TDI, HDI	≤ 1	µg/m <sup>3</sup>
Monomeric isocyanates MDI <sup>(2)</sup>	≤ 2	µg/m <sup>3</sup>
<b>after 28 days</b>		
Total semi-volatile organic compounds (TSVOC)	≤ 100	µg/m <sup>3</sup>
Formaldehyde	≤ 36 <sup>(1)</sup>	µg/m <sup>3</sup>
Acetaldehyde	≤ 36 <sup>(1)</sup>	µg/m <sup>3</sup>

<sup>(1)</sup> 36 µg/m<sup>3</sup> ≈ 0,03 ppm

<sup>(2)</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.

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	≤ 0,5	mg/kg	TM-05 Pesticides





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Organophosphate pesticides: Dimethoat, Fenthion, Parathion-methyl, Parathion-ethyl, Phosalon			
Pyrethroids: Cypermethrin, Lambda-Cyhalothrin, Permethrin			
Other: Benomyl, Carbendazim, Prochloraz			

## 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.