natureplus e.V.

Award Guideline 0201

Porous Wood-Fibre Boards

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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 untreated porous wood fibre board according to EN 622 parts 1 and 4, with a raw density > 230 kg/m³. This award guideline is to be applied exclusively to the named products. Bonded systems which incorporate wood fibre board 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 Functional Suitability

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 product must fulfil the requirements of EN 622 parts 1 and 4.

2.2 Composition, Forbidden Substances, Substance Restrictions

Porous wood fibre board requiring increased moisture resistance characteristics (e.g. used in roofing areas):

These boards must be made to at least 88% from renewable raw materials (ligno-cellulose fibres, wood resin etc) based upon the dry weight of the product. The proportion of hydrophobic (water resistant/repellent) substances including synthetic binding agents (i.e. paraffin, bitumen or similar) is restricted to a maximum of 10% of the dry weight of the product. The synthetic binding agents are restricted to a maximum of 5%.

Porous wood fibre board not requiring increased moisture resistance characteristics (e.g. used in sound-proofing)

These boards must be made to at least 95% from renewable raw materials (lignocellulose fibres, wood resin etc) based upon the dry weight of the product. The proportion of hydrophobic (water resistant/repellent) substances including synthetic binding agents is restricted to a maximum of 3% of the dry weight of the product.

Porous wood fibre boards may contain a maximum of 2% of mineral-based flame retardants based upon the dry weight of the product. The use of boron compounds as fire-retardants and/or biocides within the product is forbidden.

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

At least 50 M-% of the raw materials employed must be from secondary raw materials such as industrial timber waste (sawn off-cuts, chippings, bark and off-cuts from trees) or recovered wood (old wood). This must be proven through documentary evidence. If old wood is used, the requirements for old wood as laid down in GL-5002 have to be met. At least 80 % of the lignocellulose shavings, chippings and fibres contained within the product must originate from a source within a radius of no further than a 300 road-kilometre-equivalent(1) from the production plant. 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.

If bitumen has been employed in the production of the product, the manufacturer must prove that no aerosols or dusts containing bitumen have been produced during the production process or occur in the installation process. The manufacturer should aim to keep the water used in the production process in a closed circulation system.

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.

If an open circulation system is employed the following points apply: The specific amount of waste water should not exceed 2 m³ per ton of wood-fibre board. If the waste water is discharged into flowing water systems (i.e. rivers, canals) or into the public sewerage/drainage system, the following emission limits should be observed:

	Discharge into a flowing water system	Discharge into the public sewerage system
General parameters		
Temperature	30°C	35°C
Bacterial toxicity G_L	4	a)
Fish toxicity G_F	2	a)
Settleable matter	0,3 ml/l	10 ml/l
pH value	6,5-8,5	6,0-9,5
Anorganic parameters		
Ammonium as nitrogen (N)	5,0 mg/l	-
Sulfate as SO_4	-	200 mg/l
Organic parameters		
COD (chemical oxygen demand) as O_2	1 kg/t	-
BOD5 (5 day biochemical oxygen demand) as O_2	25 mg/l	-
AOX as chlorine (Cl)	0,2 g/t	0,2 g/t
Total Hydrocarbons	10 mg/l	20 mg/l
Phenol	0,3 g/t	60 g/t

a) A discharge must not detrimentally affect the biological decomposition processes within a public water treatment facility.

If the waste water is discharged into a flowing water system, the level of aluminium contained must be below 2 mg/l.

If the waste water is discharged directly into a water treatment facility then special rules may be agreed with the water treatment authorities on a case by case basis. The guideline values may be exceeded under certain special conditions if this is permitted or necessary and authorised or prescribed by the responsible authorities.

The production equipment air emissions must comply with the emission levels as per the air cleanliness regulations for boiler plant equipment Austria (BGBl. 1989/19 and/or 1997/324) or a comparable regulatory standard.

(1) 1 km Road ≈ 2.5 km Train ≈ 27 km Ship-Overseas ≈ 4 km Ship-Inland waterways.

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

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 m³	Guide values[1]
Primary energy input of non renewable total resources (PENRE[2]) [MJ]	4400
Primary energy input of non renewable and renewable total resources (PET[3]) [MJ]	5200
Photochemical ozone creation potential (POCP) [kg ethylen-equiv.]	0,1
Acidification potential (AP) [kg SO_2-equiv.]	1,1
Eutrophication potential (EP) [kg PO_4^{3-}-equiv.]	0,4
Global-warming potential (GWP) [kg CO_2 equiv.]	260

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.

- 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/m²] or density [kg/m³]
- Thickness [mm]
- Wood origin
- Euro class according to EN 13501-1

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 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**

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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 after 28 days

Test parameters	Limit values	Unit
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

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
Aluminium (Al)	(1)	
Arsenic (As)	1	mg/kg
Beryllium (Be)	1	mg/kg

Cadmium (Cd)	0,5	mg/kg
Cobalt (Co)	1	mg/kg
Chromium (Cr)	30	mg/kg
Copper (Cu)	20	mg/kg
Mercury (Hg)	0,3	mg/kg
Nickel (Ni)	10	mg/kg
Lead (Pb)	10	mg/kg
Antimony (Sb)	1	mg/kg
Zirconium (Zr)	1	mg/kg

(1) Verification of the manufacturer's information about the aluminium content, if aluminium compounds are employed.

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

If bitumen in wood-fibre boards is allowed or wood waste is used, the following additional limit value applies:

Parameter	Limit value	Unit	Method
Total PAH (Polycyclic Aromatic Hydrocarbons), according to EPA	≤ 16	**mg/kg**	HPLC/GC-MS

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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