natureplus association

Covid 19: The Importance of Healthy Buildings

Web Conference on 22 October 2020

Tilmann Kramolisch
Covid 19: The Importance of Healthy Buildings

Web Conference – Welcoming

Content

1. natureplus association & Eco-Label
2. Defining healthy building products
3. Testing & certification process
4. Product database & services
natureplus association

Who we are

natureplus – International Association for Sustainable Building & Living

→ Non-profit environmental association
→ Member-based network
→ Mission-driven commitment

“The natureplus association is committed to the transformation of the building sector towards climate-protecting, resource-saving and healthy building and living – this is only possible with sustainable building materials and construction methods.”
natureplus association

Who we are

European network

strong partners, available all over Europe

members & partners

Over 80 member organisations (a selection)
natureplus association
who is involved

Multi-stakeholder approach

- Environmental organisations
- Trades unions
- Consumer and health organisations
- Private individuals
- Research, scientific and test/assessment institutes
- Building product manufacturers
- Building product merchants
- Construction and housing industries

Criteria Commission

Board

Country Representatives

natureplus 2020
Covid 19: The Importance of Healthy Buildings
natureplus eco-label

For sustainable & healthy building products

natureplus type I – label (according to ISO 14024)

- The strict criteria are defined & continuously adjusted by the independent criteria commission
- Only products that meet the very strict criteria – far above legal obligations – are certified
- The eco-label is awarded after independent testing by the natureplus Institute SCE
- The assessments are repeated regularly

- natureplus is recognised Europe-wide
- Accepted by building certification schemes: LEED, BREEAM, DGNB, BNB, WELL
- Proof of quality in municipal funding programmes
Defining healthy building products

The Criteria Commission

Independent Criteria Commission (CC)

The CC is responsible for the development and harmonization of the criteria and procedures for the award of the Eco-Label.

- 1 chair and 8 members
- Representing all branches of natureplus members
- Scientific expertise
- Inclusion of expert working groups & hearings

Andreas Stache
Astrid Scharnhorst
Mihaela Dimonu
Vanessa Laumann
Holger Struwe
Michael Köhler
Rolf Buschmann
Ulrich Steinmeyer

Chair CC: Hildegund Figl
Defining healthy building products

Holistic & specific guidelines

Basic guidelines

✓ Healthy housing & living during the utilisation phase (VOCs)
✓ Climate-friendly, energy efficient production (grey energy, footprint & LCAs)
✓ Sustainable resource extraction
✓ Labour safety and social sustainability
✓ Recycling, re-use, disposal (Circular Economy)
✓ Usability & durability

Product guidelines

✓ Fair competition between different product groups
✓ Comparing products in their direct surrounding, e.g. bricks with bricks and plasters with plasters
✓ Measure and highline product specific contributions

GL series 5000

GL series 0100 – 2000
Defining healthy building products

Strict criteria – low emissions for all materials

Low Emission Building Products - Basic GL 5010

Preventive health protection principles:

- the principle of minimization
- preventive health protection / the precautionary principle
- the interior room standard values of the Federal Environment Agency
- the classification according to TRGS 905/907, DFG-MAK list, EU regulation 1272/2008 and IARC classification
- the German regulations for the evaluation of VOC emissions from building products, the so-called AgBB scheme, developed by the Committee for the Health Evaluation of Building Products with limit values for e.g. volatile organic compounds, SVOC and for LCI values

Volatile organic compounds are determined in accordance with the international standards EN 16516 and EN ISO 15000-9, ISO 16000-6 and -3.[1][8]
### Defining healthy building products

**GL 5010: Threshold value TVOC**

<table>
<thead>
<tr>
<th>Test parameters</th>
<th>Threshold Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>24h after loading the test chamber</strong></td>
<td></td>
</tr>
<tr>
<td>Monomeric Isocyanates (only if relevant input components have been employed)</td>
<td>$\leq 1 , \mu g/m^3$ (TDI, HDI) $\leq 2 , \mu g/m^3$ (MDI)</td>
</tr>
<tr>
<td><strong>3 days after loading the test chamber</strong></td>
<td></td>
</tr>
<tr>
<td>TVOC (Total Volatile Organic Compounds)</td>
<td>$\leq 3,000 , \mu g/m^3$</td>
</tr>
<tr>
<td><strong>Test parameters</strong></td>
<td><strong>Threshold Limits</strong></td>
</tr>
<tr>
<td>TVOC (only applies to textile floor coverings)</td>
<td>$\leq 250 , \mu g/m^3$</td>
</tr>
<tr>
<td>VOC (incl. VVOC and SVOC) classified in¹⁴:</td>
<td>$\leq 1 , \mu g/m^3$</td>
</tr>
<tr>
<td>Regulation (EC) No. 1272/2008: Categories Carc.1A &amp; 1B, Muta. 1A &amp; 1B, Rep. 1A &amp; 1B; TRGS 905: K1A, K1B, M1A, M1B, R1A, R1B; IARC: Group 1 &amp; 2A; DFG (MAK-List): Category III1, III2</td>
<td></td>
</tr>
<tr>
<td>Carbon disulphide (only applies to products with latex components &gt; 1 %)</td>
<td>$\leq 50 , \mu g/m^3$</td>
</tr>
<tr>
<td>Nitrosamines (only applies to products with latex components &gt; 1 %)</td>
<td>$\leq 0.1 , \mu g/m^3$</td>
</tr>
<tr>
<td><strong>28 days after loading the test chamber</strong></td>
<td></td>
</tr>
<tr>
<td>TVOC (Total Volatile Organic Compounds)</td>
<td>$\leq 300 , \mu g/m^3$</td>
</tr>
</tbody>
</table>
## Defining healthy building products

### GL 5010: Threshold value formaldehyde

<table>
<thead>
<tr>
<th>Test parameters</th>
<th>Threshold Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycol ether with insufficient data available[^5] (Threshold limits per individual substance):</td>
<td>0.005 ppm</td>
</tr>
<tr>
<td>Propane-1,2-diol (Propylene glycol)</td>
<td>( \leq 60 \mu g/m^3 )</td>
</tr>
<tr>
<td>2-Phenoxyethanol</td>
<td>( \leq 30 \mu g/m^3 )</td>
</tr>
<tr>
<td>Phenol</td>
<td>( \leq 20 \mu g/m^3 )</td>
</tr>
<tr>
<td>Acetic acid</td>
<td>( \leq 600 \mu g/m^3 )</td>
</tr>
<tr>
<td>TSVOC (Total semi-volatile organic compounds)</td>
<td>( \leq 100 \mu g/m^3 )</td>
</tr>
<tr>
<td>TSVOC (only applies to textile floor coverings)</td>
<td>( \leq 30 \mu g/m^3 )</td>
</tr>
<tr>
<td>R-Value</td>
<td>( \leq 17 )</td>
</tr>
<tr>
<td>Ammoniac (only applies to products for which an ammoniac measurement must be conducted in accordance with the relevant award guideline)</td>
<td>( \leq 100 \mu g/m^3 )</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>( \leq 24^9/36 \mu g/m^3 )</td>
</tr>
<tr>
<td>Formaldehyde (only applies to textile floor coverings)[^2]</td>
<td>( \leq 10 \mu g/m^3 )</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>( \leq 24^8/36 \mu g/m^3 )</td>
</tr>
<tr>
<td>Acetaldehyde (only applies to textile floor coverings)[^3]</td>
<td>( \leq 24 \mu g/m^3 )</td>
</tr>
</tbody>
</table>

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[^5]: Stricter requirements are applied to textile floor coverings (Award guideline 1400) based upon the certification systems for buildings.

[^2]: The emissions test can be terminated prematurely 7 days after the test chamber has been loaded if the values measured at this time are lower than 50% of the 28-day threshold limits and, in comparison to the values measured after 3 days, no significant increases in the concentration levels of individual substances have been observed.

[^3]: Exceptions apply to formaldehyde and similarly acetaldehyde (Classification: Circ. 1B) due to an assumed “practical threshold”, below which there is no expectation of a significant carcinogenic risk. Individual examinations are conducted for these substances.
Defining healthy building products

Precautionary Principle

Basic RL 5010: Emission testing

- **strict TVOC of 300 µg/m³**
  (is about 1/3 of the prescribed value)
- **Acetic acid with own threshold value of 600 µg/m³**
  (is far below NIK with 1200 µg/m³)
- **Formaldehyde threshold value of 36 µg/m³**
  (instead of 10 µg/m³ of the French VOC regulation)
- **Examination after 8 weeks „resting period“**
  (based on the period between production and installation)

→ Minimisation of health risks through precaution
Independent natureplus INSTITUTE SCE
The natureplus Institute is a European, cooperatively organised, assessment institute.

- Organisation & coordination of the assessment procedures
- Verification & evaluation of the assessment results
- Testing by accredited laboratories
The analyses are performed in laboratories which are accredited for both test chamber tests and the following analysis (Section 2.2) according to EN ISO/IEC 17025 and recognised by natureplus.\footnote{[3]}

The specifications for sampling can be found in the sampling instructions. The test must be started no later than 8 weeks after the product is cleared for trading. In the intermediate period, the samples are stored in suitable packaging made of low-emission materials and under normal climatic room conditions.

2.1 General Parameters - Test Chamber

The volatile organic compounds are measured in the test chamber under conditions very close to actual practice. Depending on the type of test sample, standardized test conditions are defined. All emission measurements are carried out according to EN 16516 incl. EN ISO 16000-9, DIN ISO 16000-6 and -3.\footnote{[1]}\footnote{[2]}

2.2 Analysis

The substances adsorbed on Tenax are analysed after thermal desorption by means of gas chromatographic separation and mass spectrometric determination. The gas chromatographic separation is carried out using a 30-60 m long, weakly polarised 5 % phenyl/95 % methyl polysiloxane capillary column.
Testing & certification process
*conducted by accredited laboratories*

**eco-INSTITUT Köln/Cologne**

125 L chambers

20 m³ chamber

*Source: eco-INSTITUTE Germany GmbH*
DIN EN 16516: The European reference room

Volume: $3 \times 4 \times 2.5 = 30 \text{ m}^3$

Air change rate: $0.5/\text{h}$

Flooring: $3 \times 4 = 12 \text{ m}^2$
DIN EN 16516: Test chamber conditions

Certification

Evaluation

Analytics

Certified healthy product
Information & Services

- Database with over 600 awarded products
- Consulting assistance, e.g. bfub insulation case natural building materials
- Web seminars & training courses
- natureplus eco-label
- Online services & building material consulting
- Information & lobbying
GUTEX Pyroresist

Manufacturer

GUTEX Holzfaserplattenwerk
D-79761 Waldshut-Tiengen
Germany

Description

Product groups: Wood-fibre insulation boards
Country of origin of raw materials (text): not specified
Reference value: not specified

Technical characteristics

Physical parameters
- Density: not specified kg/m³
- Specific heat capacity: not specified 3/(kg·K)

Serviceability
- Flammability class: not specified

Ecological characteristics - sustainability

Sustainable production
- Production phase (A1 - A3 according to EN 15804):
  - Energy efficient production process
  - Environmental protection and clean production
  - Climate Protection via reduced CO₂ emissions

The compliance with the natureplus guideline values certifies an energy efficient, environmental and climate friendly production process above average.

Emissions - health and environmentally hazardous substances
natureplus association

How to get involved

➔ Become a member – evolve your network

➔ Subscribe to the newsletter – receive latest information monthly and free of charge

➔ Become a sponsor – support natureplus, e.g. at Web seminars, conferences, etc.

➔ Set standards – participating in building materials working groups of the Criteria Commission

➔ Foster dialog – register for natureplus events

➔ Do you have concrete projects, ideas or suggestions?

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natureplus association

Contact

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