



natureplus e.V.

## **Guideline 0301**

# **Thermal Insulation Composite Systems for Interior Use**

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for the awardance of the eco-label

## 0 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 economic sustainability. 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 requires us to undertake every effort to reduce these encroachments to the lowest level possible and to 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 healthy room 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 305/2011: 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.

## I Application Areas

The following criteria contain the requirements for the awardance of the natureplus eco-label for the product group Thermal Insulation Composite Systems comprised of insulation materials, adhesives, fixings and a render/plaster system (base render with an embedded fibre-glass mesh (reinforcement), primer and finishing plaster):

- Thermal Insulation Composite Systems employing Cork Insulation Boards
- Thermal Insulation Composite Systems employing Wood-Fibre Insulation Boards
- Thermal Insulation Composite Systems employing Hemp Insulation Boards
- Thermal Insulation Composite Systems employing Reed Insulation Boards
- Thermal Insulation Composite Systems employing Mineral Foam Insulation Boards
- Thermal Insulation Composite Systems employing Foam Glass Insulation Boards
- Thermal Insulation Composite Systems employing Perlite Insulation Boards

This awardance guideline is to be applied exclusively to the named product group.

## 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:

- GL-5001 Chemicals Directive
- GL5002 Origin of Wood and Wood Production
- GL-5003 Nature Conservation when Exploiting Mineral Resources
- GL-5004 Transparency and Social Responsibility
- GL-5010 Low-emission building products
- GL-5010 Low-emission building products

The requirements of the basic guidelines can be fulfilled via certification of the individual components.

### Requirements for the system components

Wood fibre insulation boards must fulfil the requirements of the award guideline RL0201 "Porous Wood Fibre Board". The award guideline RL0201 is also to be used in the case of products with a raw density below 230 kg/m<sup>3</sup>.

Hemp insulation boards must fulfil the requirements of the award guideline RL0101 "Hemp Insulation".

Insulation boards made from reeds must fulfil the requirements of the award guideline RL0111 "Straw and Reed Based Insulation".

Cork insulation boards must fulfil the requirements of the award guideline RL0113 "Cork Insulation Boards".

Mineral based foam insulation boards must fulfil the requirements of the award guideline RL0406 "Mineral Based Foam Insulation".

Foam glass boards must meet the requirements of the award guidelines RL0406 "Insulation boards made of foam glass".

Perlite insulation boards must fulfil the requirements of the awardance guideline RL0408 "Perlite insulation boards for Interior Use".

Finishing plasters, renders and adhesive mortars must fulfil the relevant product guideline from the following list:

- 0801 Plaster/Mortar for Internal Applications
- 0802 Gypsum and Gypsum-Based Plasters for Interior Use
- 0803 Loam/Clay Based Mortar
- 0804 Stabilised Loam/Clay Render/Mortar
- 0806 Renders and Plasters for Insulation Systems
- 0808 Mineral-Based Adhesive and Filler/Render/Plaster Coatings for Interior Use

The determination of the ecological indicators is thereby unnecessary.

## 2.1 Functional Suitability

The manufacturer must provide documentary evidence that the water vapour diffusion and condensation within the wall construction does not lead to moisture damage. Parameters which should be taken into account are the sorption capacity, the diffusion and the airtightness. The manufacturer must provide the installer with suitable informational and training documentation in order that construction-related problems may be recognised and appropriate solutions found.

## 2.2 Composition, Forbidden Substances, Substance Restrictions

Plastic fixing plugs and accessories must be halogen-free and if available from recycled materials.

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

No further requirements in this section.

## 2.4 Usage

No further requirements in this section.

## 2.5 Recycling/Disposal

A disposal concept must be provided for the complete system. The components must be suitable for disposal in an inert materials disposal site/facility according to the "Decision of the EU council of the 19th December 2002 on the definition of criteria and procedures for the receipt and acceptance of waste products at waste disposal sites according to article 16 and appendix 2 of the guideline 1999/31/EG". Alternatively the components must be suitable for disposal in a waste incineration plant.

## 2.6 Ecological Parameters

No further requirements in this section.

## 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 (e.g. 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 using ingredients with an environmentally hazardous potential, the manufacturer 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).

## 2.8 Processing and Installation

No further requirements in this section.

## 2.9 Packaging

No further requirements in this section.

## 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 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.

If all significant components of the system (finishing coat, rendering, adhesive mortar) is made from products certified by natureplus, no laboratory tests are necessary.

Otherwise, the system components are subject to laboratory tests as per the corresponding guideline for the single components.

The inspection body may order further laboratory tests if necessary.

### 3.1 Volatile Organic Compounds VOC / TVOC

Tests are to be carried out in accordance with the respective valid award guidelines for the system components according to Section 3 "Laboratory tests" (see Section 2: Requirements for the system components).

Laboratory tests of the entire External Thermal Insulation Composite System or additional components that are not covered by the natureplus Award Guidelines can be ordered by the Testing Laboratory if required.

### 3.2 Element Analyses

Tests are to be carried out in accordance with the respective valid award guidelines for the system components according to Section 3 "Laboratory tests" (see Section 2: Requirements for the system components).

### 3.3 Other Analyses

Tests are to be carried out in accordance with the respective valid award guidelines for the system components according to Section 3 "Laboratory tests" (see Section 2: Requirements for the system components).

## 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 24h after loading the test chamber

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