



Institut für **Baubiologie** Rosenheim GmbH

# Reaudit for the product certification

No. 3015 - 729

with reference to the seal of approval

"Tested and Recommended by the IBR"



for the product

**Mineral foam board**

Applicant: poratec GmbH  
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Term of validity: May 2017

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It is the objective of the IBR to identify non-polluting building products for healthy living for the consumer by awarding the seal of approval "TESTED AND APPROVED BY THE IBR".



The seal of approval was created by the Institut für Baubiologie Rosenheim GmbH in 1982 to enable consumers with awareness for health and ecological matters to protect themselves against health hazards caused by building materials and furniture in their residential environment.

The seal of approval is awarded to products which ensure healthy living with respect to building biology and at the same time protect the environment. When awarding the seal of approval, we only use scientific and technical analysis methods which are based on normative regulations as well as the current state-of-the-art of laboratory analytics so that they should be understood both by third-party experts and by end consumers.

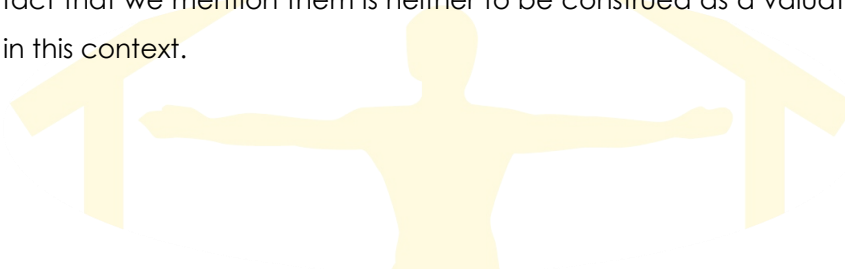
The aim of awarding the seal of approval "TESTED AND RECOMMENDED BY THE IBR" to as many products as possible is to enable an increasing number of consumers and end users to make criteria related to building biology a critical part of their decision when purchasing products for building and furnishing their homes.

The tests listed in our expert reports are not supposed to supersede the requirements in terms of building physics, supervision, legal regulations, or safety. They are merely a complementary set of tests related to health, physiology, building biology, and ecology aspects which have been neglected.

The seal of approval "TESTED AND APPROVED BY THE IBR" is based on a holistic perspective. Besides its focus on the tests that determine the potential physiological impact of the products on human beings and/or the environment, the expert report associated with granting the seal also honours any product whose production, processing, use, and ecological recycling have no or only a limited, tolerable adverse effect on the environment.

The emission of harmful substances, e.g. with a carcinogenic and/or mutagenic potential, is always to be considered as a criterion for exclusion. The seal of approval will under no circumstances be awarded to such products.

Any names of companies, products or brands mentioned in our expert reports are protected by copyright. The fact that we mention them is neither to be construed as a valuation nor as a recommendation in this context.



## Product:

For the purpose of awarding the seal of approval, the company has instructed us to subject its products, the mineral foam board, to building biology follow-up testing based on follow-up testing conducted in 2013 (expert report no. 3013 - 602). The mineral foam board was collected from the customer on 3 June 2015 by an IBR employee.

The product submitted for testing is a purely mineral insulation board with low density. The product is mainly used as material for thermal insulation in the building industry.

## Test results:

The be awarded the seal of approval, the products are generally tested based on the IBR seal of approval guidelines in regards to the following criteria:

### 1. Radioactivity

Natural radiation exposure is composed of cosmic and terrestrial radiation. Humans are mainly subject to internal exposure due to radon gas. In addition to radon in ground air due to geological conditions, an increased concentration of radon may be found in living spaces because of certain building materials. Breathing in the gas over a long period of time may expose the lungs to radioactive radiation. While most radon particles are exhaled again, its radioactive decay products can be deposited in the lungs. In 1999, the Radiation Protection 112 document issued by the European Commission proposed an Activity Concentration Index (ACI) for building materials. The limit is  $ACI \leq 1.00$  while the Institut für Baubiologie Rosenheim sets the ACI limit at  $\leq 0.75$ . Gamma-spectrometry is used to determine the natural radioactivity.

#### Evaluation:

The tested mineral foam board with a value of 0.14 is below the allowable limits and is therefore safe in regards to radiation exposure.

### 2. Biocides, pyrethroids, OHCs, phthalates

Biocides, pyrethroids, organic halogenated compounds (OHCs) or phthalates are added to different building materials to produce various properties such as pest resistance and durability, or also for technical processing reasons. Organic halogenated compounds are further differentiated into AOX (adsorbable organic halogens), POX (purgeable organic halogens) and EOX (extractable organic halogens) according to DIN 1485. In order to prevent the impairment of health due to the classes of compounds named above, limit values have been established for safe use of the building materials in living spaces and these should not be exceeded.

Test method: The tests are carried out by means of extraction based on DFG-S19 and coulometry according to DIN 38414-S17/18.

Evaluation:

No biocides, pyrethroids, organic halogenated compounds or phthalates in measurable concentrations were found in the mineral foam board submitted for testing. All measurements are below the detection limits specific to the analysis, so that no exposure due to the boards is expected.

### **3. Solvent and odoriferous VOC substance testing**

The room climate has a major impact on the health and well being of people in interior rooms, which is why contamination of the room air by emissions of all kinds must be prevented as far as possible. In order to prevent the impairment of health due to volatile organic compounds (VOCs) from building materials, a comprehensive evaluation system was prepared for VOC emissions from building products used in the interior rooms of buildings. The evaluation of the measurement results is performed according to the standards of the "Ausschuss zur gesundheitlichen Bewertung von Bauprodukten" (Committee for the Health Assessment of Building Products) (AgBB).

Test method: The tests are conducted by means of VOC emission chamber measurement according to DIN EN ISO 16000-9.

Evaluation:

Based on the measurement results and the comparison of measures according to the AgBB schema as well as the approval principles of the DIBt, exposure to emissions of volatile organic compounds due to the tested mineral foam board is not expected. Using the mineral foam board in the interior rooms of buildings is therefore harmless to health in regards to VOC emissions.

### **4. Heavy metals**

By determining the metals contained in the building materials, a statement can be made regarding health risks and possible environmental hazards of the base products used. The most notorious environmentally harmful heavy metals are lead, cadmium and mercury.

Test method: Quantitative determination according to DIN EN ISO 17294-2 using ICP-MS (inductively coupled plasma mass spectrometry). This method enables detection of a large number of elements in a short time and, due to its capability to detect elements reliably, it is one of the most common methods of trace element analytics.

The limit values according to LAGA (working group of the German federal states on waste issues) are used to identify a possible environmental impact due to heavy metals. The assignment values Z 0 to Z 2 are the upper limits for each incorporation class when ground material is used for earthworks, road building, landscaping and landfill work (e.g. cap layers), for the filling of building pits and for land reclamation.

Z 0: Unrestricted incorporation

Z 1.1: Restricted incorporation in open sites

Z 1.2: Restricted incorporation in open sites in areas with favourable hydrogeological conditions

Z 2: Restricted incorporation with defined technical safety measures

By determining the content in the eluate according to DIN 38414 S 4, a potential hazard to waters caused by metals should be excluded when the material is landfilled after its useful product life. The comparative values according to LAGA are used here as well (eluate assignment values for soil are applicable) and the requirements of the TVO (German Drinking Water Regulation) as of 1 January 2008 are taken into account.

#### Evaluation:

Based on the measurement values which are below the specified limit values, the mineral foam board as building product is not expected to impact the environment. Unrestricted incorporation of the product in earthworks, streets, landscaping and landfills is harmless based on the analysis of the original substance. However, to prevent waters from any potential exposures to metals it should be taken in account a restricted incorporation in open sites in areas with favourable hydrogeological conditions. The requirements of the German Drinking Water Regulation (TVO) are met.

## **5. Fine dust**

In addition to the specific effect of harmful substances, the concentration and the exposure time, evaluating the health hazards due to dust has to consider the size of the particles that enter the body due to respiration. The respirable portion of the overall dust content is assessed in the building biology tests. A product that contains dust and makes the visual impression of being very dusty does not necessarily contain respirable dust.

Test procedure: The fine dust content is determined according to the following standards, among others:

DIN 53808-1: Determination of the fibre length – individual fibre measurement

DIN EN ISO 1973: Fineness

DIN 53811: Determination of the longitudinal fibre diameter in micro-projection

VDI directive 3866: Determination of asbestos in technical products

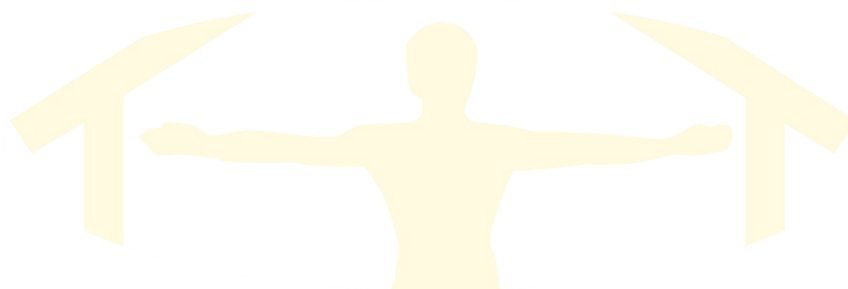
Fibre and fine dust determinations always include assaying the fibre length and fibre diameter as well as the statistical assessment of the existing dust mixture.

Evaluation:

No fine dust exposure is caused by using the mineral foam board, since neither the traces of dust nor the traces of fine dust were present in the fibrous form which is prerequisite for respirable dust.

**Overall assessment:**

Based on the tests that were conducted, the tested mineral foam board of the company Poratec can be classified as safe in regards to the criteria of the seal of approval guidelines defined by the Institut für Baubiologie Rosenheim GmbH.



## Notices on awarding and using the seal of approval

In order to ensure neutrality and impartiality, all tests were carried out by independent third parties. We commission the required studies and tests from economically independent laboratories with which we have been maintaining long-standing business relationships. All test results contained in this expert report have been taken from the external test reports. They are archived and can be viewed by the ordering party at any time. The logo of the seal of approval as shown below is protected by copyright. All rights are owned by the IBR.



This seal of approval must always be used in conjunction with the entire product name. The manufacturer may only use the seal of approval in advertising for the specific products for which it was awarded. The manufacturer is obliged not to try to mislead consumers as to for which products the seal of approval has been awarded and for which not. This also applies to the term "TESTED AND APPROVED BY THE IBR".

The "IBR" mark may only be used as a constituent part of the seal of approval.

It is possible to apply for an extension before the period of validity expires. Continued use of the seal of approval depends on the results from the subsequent tests performed by the IBR. Subsequent testing will always be performed according to the seal of approval guidelines valid at the time of testing.

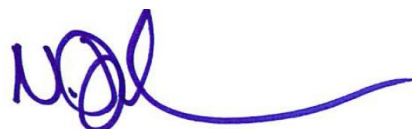
The manufacturers are obliged to inform the IBR in due time of any modification of the product that might have any impact on the product relevant to building biology.

In case of misuse, the institute may prohibit the use of the seal of approval without notice. Employees of the IBR or persons charged by the IBR may at any time, even without prior notice, visit the applicant's production site.

Rosenheim, 29th of July 2015



Reimut Hentschel | Manager



Nicole Dannenbauer | Dipl.-Chem.

## Bibliography

Within the framework of quality management, we also aim to provide sufficient transparency of our processes to third parties. Among other things, this includes listing all parties involved in the certification process.

Laboratories	Investigations	Address	Internet
Indikator GmbH	Heavy metals content	Kaiserstraße 86 a 42329 Wuppertal/Germany +49 (0)202 2641085	www.indikator-labor.de info@indikator-labor.de
Hydroisotop GmbH	Radioactivity	Woelkestraße 9 D-85301 Schweitenkirchen +49 (0)89 307749-0	www.hydroisotop.de info@hydroisotop.de
VDE Prüf- und Zertifizierungsinstitut GmbH	VOC/biocides Formaldehyde Fine dusts Building design certificates	Merianstraße 28 D-63069 Offenbach/Germany +49 (0)69 8306-0	www.vde.com/de vde-institut@vde.com

All of the aforementioned parties are economically independent companies who provide commercial laboratory analyses in their own name and on their own account.

