

Description:

Roofpor® is an expandable polystyrene granulate (EPS) which can be processed into foam boards with reduced water absorption and a density above 25 kg/m³.

Roofpor® contains a flame-retardant additive and corresponds to DIN 4102/B1. Material is available in white, and pastel shades of blue, pink, and yellow.

Density range:

25 - 40 kg/m³

Granulate geometry:

Roofpor® is supplied as a bead-shaped granulate, of diameter:

0,6 – 1,0 mm (> 90% by weight)

Pentane content:

> 6,0% by weight (at the time of packaging)

Water content:

< 0.4% by weight

Packaging and storage:

Roofpor® is supplied in octabins (1,150 kg). The packaging is not rainproof and must therefore not be exposed to outdoor conditions. In order to obtain the desired properties of Roofpor®, the raw material should be stored below 20°C and be used up within a month.



Processing:

Pre-expansion:

With discontinuously operating state-of-the-art pre-expanders, Roofpor® can be pre-expanded to densities of approximately 25 kg/m³.

The pre-expanded material should not be dried too long and intens in the fluid bed otherwise static charging might occur.

Intermediate aging:

Intermediate aging should be between 10 and 48 hours.

Moulding:

Roofpor® can be processed in commercially available moulding machines.

When processing into moulded foam boards used for direct water or moisture contact, best possible fusion must be ensured since the degree of fusion is directly connected with the water absorption.

Water absorption

When using construction insulating materials with direct water or moisture contact (e.g. perimeter insulations; reversible roof insulation), low water absorption is of decisive importance, since an absorption of 1% by volume of water will increase the thermal conductivity by approximately 4 % (see fig. 1).

The special coating of Roofpor® together with the additives present in the plastic, guarantee minimum water and steam absorption.

In order to ensure optimum results, best possible fusion is of decisive importance. We therefore recommend that the degree of fusion is checked using a "fusion tester" supplied by

Mahr GmbH (Göttingen) and to adjust the fusion to >95%.

The suitability for certain applications must be verified through test methods simulating the long term behaviour of the insulating material.

These test methods have meanwhile been standardised European-wide.

1.) Long-term water absorption by immersion (EN 12087):

With this test, the test specimen is stored under water for 28 days at 23°C, and the water absorption is subsequently determined in % by volume. During this test the water can exclusively enter the pearl intermediate spaces. Consequently the degree of fusion is the decisive parameter for the water absorption. The EPS raw material employed can only act in a supportive manner.

2.) Long-term water absorption by diffusion (EN 12088):

With this test method one side of the test specimen is exposed to a 50°C warm steam phase, and a cold cooling surface of 1°C on the opposite side. Through the large steam pressure differences and the high humidity of the air, this test arrangement primarily simulates conditions such as encountered on “reverse roofs“.

Since EPS not specially developed for these applications is highly permeable by steam, the steam does not only enter the intermediate spaces but also the pearls proper, condenses and can no longer escape as water.

Roofpor® contains special additives which severely reduce the steam permeability, therefore reducing the water absorption by diffusion compared with “standard“ EPS by approximately 90% (see figure 2).

Despite this characteristic, an optimum fusion is important for low water absorption.

Another influence factor is the test specimen thickness (see figure 3). We therefore recommend adapting the board thickness to the respective application.

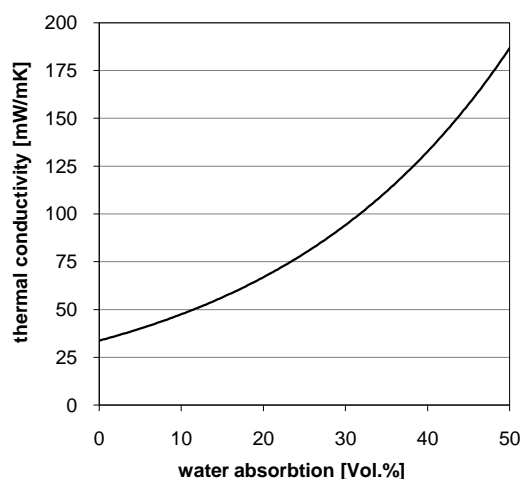


Figure 1: Influence of water absorption on thermal conductivity

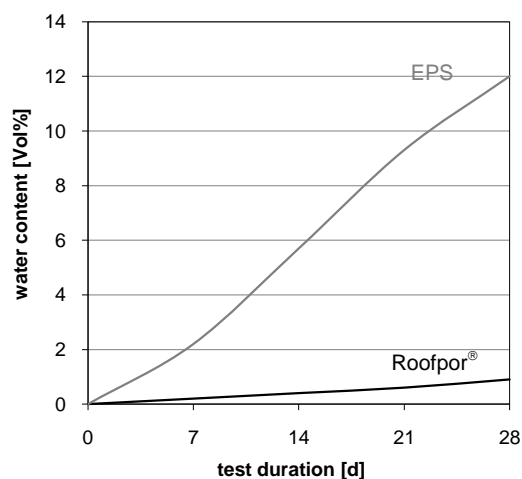


Figure 2: Comparison EPS-Roofpor® (100 mm; fusion > 95%; 30 kg/m³)

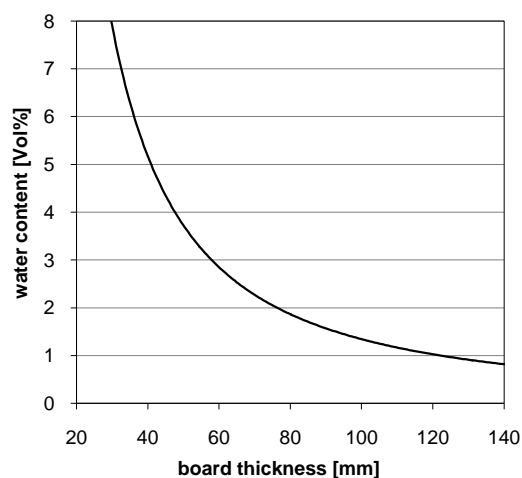


Figure 3: Influence of board thickness on water absorption by diffusion (EN 12088) (fusion >95%; 30 kg/m³)

Shipping:

ADR-marking: substance no. 2211:
Polymeric beads, expandable
Class: 9
Packing group: III ADR

Safety instructions:

Flammable pentane air mixtures may be generated during storage and processing of Roofpor®. Adequate ventilation must be ensured for this reason. All conceivable sources of ignition must therefore be kept away and the generation of electric charges prevented.

Please note:

This Notice reflects our current knowledge. The suitability for specific applications must be verified by the processor from a technical and legal point of view. Subject to technical changes.