roofpor®

Technical data sheet | Revision: 19

Description:

roofpor® is expandable polystyrene granulate (EPS) which can be processed into foam boards with reduced water absorption and a density above 25 kg/m³. **roofpor®** contains polymeric flame retardant and is certified to DIN 4102/B1 and EN 13501-1 class E.

Density range:	25 - 35 kg/m³
Granulate geometry:	bead-shaped granulate
Typical granulate diameter:	0.6 - 1.1 mm (> 95 % by weight)
Pentane content (at the time of packaging):	> 5.7 % by weight
Water content (at the time of packaging):	< 0.4 % by weight

Colour:

- **white**
- **blue**
- **green**

Packaging and storage:

roofpor® is shipped in octabins (height max. 192 cm) on wooden pallets (114 x 114 cm), containing 1,150 kg net of material. The octabins are not weather- or water-proof and must therefore not be exposed to outdoor conditions.

It is not recommended to stack octabins more than one layer high. In case of double-stacking octabins under controlled conditions, the recommendations laid out in the document **„Instructions for stacking sunpor octabins"** must be followed. In order to obtain the desired properties of **roofpor®**, the raw material should be stored below 20 °C and be processed within one 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 intensive 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 figure 1).

The special coating of **roofpor®** together with the additives included 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 throughout Europe:

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 (Vol.%). During this test the water can exclusively enter the bead 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.

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 beads 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

Shipping:

UN-Number:	2211
Designation:	Polymeric beads, expandable
Class:	9
Packing Group:	III ADR

Safety instructions:

Flammable pentane-air mixtures may be generated during storage and processing of **roofpor®**. For this reason, adequate ventilation must be ensured (LEL pentane 1.3 % by volume).

The blowing agent pentane escapes relatively slowly from EPS foam blocks. Thus, when cutting recently moulded blocks, the formation of a flammable pentane-air mixture has to be anticipated.

In addition, all conceivable sources of ignition must be kept away, and the build-up of electric charges has to be prevented.

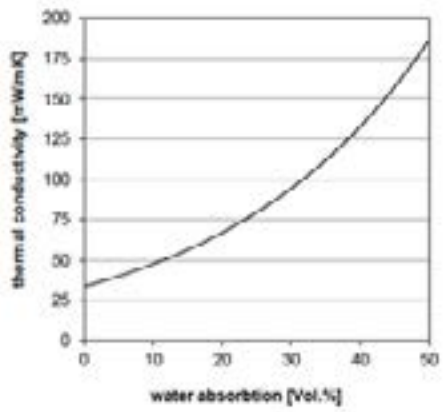

Figure 1: Influence of water absorption on thermal conductivity

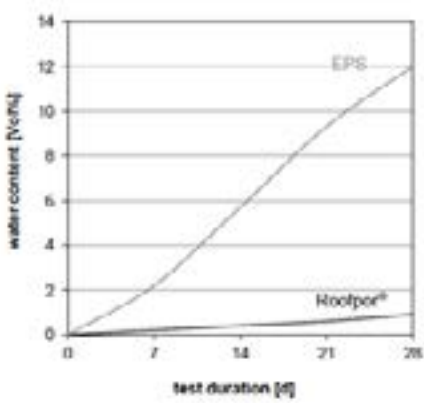

Figure 2: Comparison EPS - Roofpor® (100 mm; fusion >95 %; 30 kg/m³)

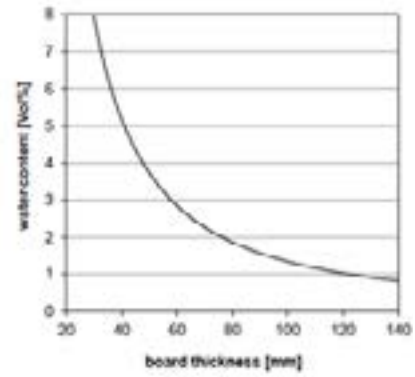

Figure. 3: Influence of board thickness on water absorption by diffusion (EN 12088) (fusion >95 %; 30 kg/m³)

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