

# lambdapor<sup>®</sup> roof

## Technical data sheet | Revision: 03

### Description:

**lambdapor<sup>®</sup> roof** is an expandable polystyrene granulate (EPS) which can be converted into foam panels and shape moulded parts with a density between 22 – 35 kg/m<sup>3</sup>.

The mouldings exhibit reduced thermal conductivity and low water absorption, which makes them ideal for use in applications in which they come into contact with water, for example inverted roofs.

**lambdapor<sup>®</sup> roof** contains polymeric flame retardant and is certified to DIN 4102/B1 and EN 13501-1 class E.

<b>Density range:</b>	22 - 35 kg/m <sup>3</sup>
<b>Granulate geometry:</b>	bead-shaped granulate
<b>Screen limits:</b>	0.6 - 1.5 mm
<b>Typical granulate diameter:</b>	0.7 - 1.3 mm (> 90 % by weight)
<b>Pentane content</b> (at the time of packaging):	> 5.0 % by weight
<b>Water content</b> (at the time of packaging):	< 0.3 % by weight

### Colour:

The special infrared blocking additives cause the grey colour of the pre-foamed beads.

### Packaging and storage:

**lambdapor<sup>®</sup> roof** 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.

In order to obtain the desired properties of **lambdapor<sup>®</sup> roof**, 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, **lambdapor<sup>®</sup> roof** can be pre-expanded to densities of 22 – 35 kg/m<sup>3</sup>.

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

#### > Intermediate aging:

Intermediate aging should be between 10 and 48 hours.

#### > Moulding:

**lambdapor<sup>®</sup> roof** 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; reversed roof insulation), low water absorption is of great importance, since absorption of 1 % by volume of water will increase the thermal conductivity by approximately 4 %.

The special coating of **lambdapor<sup>®</sup> roof** together with the additives included in the material, guarantee minimum water and steam absorption. In order to ensure optimum results, best possible fusion is very important.

We therefore recommend that the degree of fusion is checked using a "fusion tester" supplied by Erlenbach 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.

### Long-term water absorption by immersion (EN 12088):

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 only enter the spaces between the beads. 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, with 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 “reversed 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 EPS beads, condenses and can then no longer escape as water.

**lambdapor<sup>®</sup> roof** contains special additives which severely reduce the steam permeability, therefore reducing the water absorption by diffusion compared with “standard” EPS by approximately 90 %. Despite this characteristic, an optimum fusion is important for low water absorption.

Another influencing factor is the test specimen thickness. The bigger thickness of the board, the lower the water absorption. We therefore recommend adapting the board thickness to the respective application.

### Shipping:

<b>ADR-Marking:</b>	Substance no. 2211 Polymeric beads, expandable
<b>Class:</b>	9
<b>Packing Group:</b>	III ADR

### Safety instructions:

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

The blowing agent pentane escapes relatively slowly from EPS moulded parts. Thus, when cutting recently moulded parts, 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.

### Packaging of boards/moulded parts:

We recommend that **lambdapor<sup>®</sup> roof** moulded parts are packed in opaque plastic film, as their exposure to direct sunlight can result in fading and distortion.