

## CIRCULUM®

### GF-514p

#### DESCRIPTION

**GF-514p** is a flame retardant (FR) expandable polystyrene grade, containing graphite, with reduced thermal conductivity. Pentane is used as a blowing agent and a brominated polymeric flame retardant as an FR additive. The product is delivered in the form of spherical beads with a bulk density of about 0.6 g/cm<sup>3</sup> and is available in 1100 kg octabins.

#### APPLICATIONS

The properties of **GF-514p** make it suitable for the production of flame retardant light and heavy insulation board by block or shape moulding, in accordance with ISO EN 11925-2 class E.

#### PROCESSING

The processing conditions of **GF-514p** depend on the combination of the product and processing equipment used. Optimal settings have to be adjusted for each combination. Some general processing conditions are given below:

##### Prefoaming

The steam has to be saturated at a temperature of 100–110 °C. To reach densities below 15 kg/m<sup>3</sup>, batch prefoamer is recommended and with a continuous prefoamer prefoaming twice. To reach higher densities (>25 kg/m<sup>3</sup>) it is recommended to mix the steam with air.

##### Conditioning

Depends on the density. The higher the density the longer the conditioning time. Generally 12–24 hours is recommended. When prefoaming in two steps, a conditioning time of 4–6 hours between the first and the second step is optimal but can be a bit longer.

##### Moulding

The machine should be fed with saturated steam with a max pressure of about 2 bar. Steaming time depends on the equipment used as well as the size and required strength of the final product. Therefore, all machines have to be adjusted individually. Equipment using vacuum is recommended to reduce cycle times and to increase product strength.

##### Cutting

Hot wire cutting (oscillating or stationary wires) is recommended. Temperature of the wires should be about 200–300 °C.

### TECHNICAL INFORMATION

#### TYPICAL PHYSICAL PROPERTIES

Raw material	Value	Unit	Test method
Pentane content	5.5 - 6.5	%	Gas chromatography
Monomer level	< 0.1	%	Gas chromatography
Main bead size distribution	0.8 – 1.6	mm	Image analyser

#### End product

	<u>15 kg/m<sup>3</sup></u>	<u>20 kg/m<sup>3</sup></u>	<u>25 kg/m<sup>3</sup></u>
Compressive stress (10 %), (kPa), EN 826	70	105	140
Bending strength, (kPa), EN 12089	130	200	260
Heat conductivity ( $\lambda_{10}$ ), (W/mK), EN 12667	0.031	0.029	0.029

#### STORAGE

**GF-514p** should be stored at below 20 °C. Protect from direct sunlight and other weather conditions (rain, wind, frost etc.). Keep away from any source of ignition. The storage time should not exceed three months. After opening of the packaging, it should be used as soon as possible.

#### SAFETY

In transport **GF-514p** is classified according to European regulations for product transport: Substance number UN2211, Class 9.

In processing avoid generating dust. All equipment should be properly earthen. Releases pentane during processing which might form a flammable/explosive vapour-air mixture. Use proper ventilation and keep away from any source of ignition. A Safety Data Sheet is available on request.

#### RECYCLING

**GF-514p** is suitable for recycling using modern methods of grinding, cleaning and regranulation. In-house production waste should be kept clean to facilitate direct recycling.

Please contact your BEWI representative for more details on various aspects of safety, recovery and disposal of the product.

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