

Jablite EPS

EXPANDED POLYSTYRENE (EPS) TECHNICAL INFORMATION

Jablite EPS is a lightweight cellular plastic material suitable for a wide range of building-insulation applications. It is an excellent insulating medium which exhibits consistent thermal performance over the range of temperatures normally encountered in buildings.

The material is versatile, light in weight, clean and easy to handle, and provides a cost-effective means of including permanent insulation in floors, walls and roofs to meet, and exceed, the standards laid down in the Building Regulations.

Technical Description

Composition

Jablite insulation products are manufactured from EPS. The material comprises expandable beads of polystyrene pre-foamed and fused together in a steam-heated mould under pressure. This produces a block of material, up to 7314mm long, which is then cut to size and/or shape. After cutting to size, the material may be faced or laminated with other materials to suit its application.

Alternatively, the beads may be moulded into a finished, shaped section which requires no further processing.

Material Type

The following types of material are available, as defined in BS EN 13163:

EPS 70, EPS 100, EPS 150, EPS 200, EPS 250

In addition, each type is available as either Euroclass F, or Euroclass E containing a flame-retardant additive.

Additional types are also available for specific applications; for example, types with compressive-stress values, at 10%, of 400 and 500kPa.

Shape and size

After moulding, the 'block' material is cut to size, thickness and taper, if required, according to the intended end use; see individual product and application data.

Tolerances

In accordance with BS EN 13163 tolerances on the cut dimensions are defined as follows:

Length: $\pm 3\text{mm}$ or $\pm 0.6\%$ whichever is greater (L3)

Width: $\pm 3\text{mm}$ or $\pm 0.6\%$ whichever is greater (W3)

Thickness: $\pm 2\text{mm}$ (T2)

Squareness: $\pm 5\text{mm}$ per 1000mm (S5).

Alternative tolerances can be provided for specific applications.

Dimensional Stability

±0.5% under constant laboratory conditions (DS(N)5)

Nominal Densities

EPS 70 15kg/m³

EPS 100 20kg/m³

EPS 150 25kg/m³

EPS 200 30kg/m³

EPS 250 35kg/m³

Standards

Where relevant, Jablite products are produced to the requirements of the BS EN 13163 'Thermal Insulation Products for Buildings – Factory Made Products of Expanded polystyrene (EPS)' specification.

Jablite Limited has been assessed and approved to the 'BS EN ISO 9001:2000 Quality System' for quality assurance in production, installation and servicing.

Properties and Performance

Mechanical properties

Jablite Classic has a high strength to weight ratio.

Tensile Strength

Ranges from 20-400kPa, according to type and product.

Compressive strength

Ranges from 70-250kPa, according to type and product; method of test, BS EN 826.

Bending strength

Ranges from 115-350kPa, according to grade and product; method of test BS 4370:Part 1, method 4.

Design load

Ranges from 20-100kPa for 1% nominal strain, according to type and product; method of test EN 826.

Moisture Properties

Although Jablite has significant resistance to the passage of water vapour, it should not be regarded as a damp-proof membrane or vapour-control layer and will not provide a barrier against damp penetration.

A suitable damp-proof membrane or vapour-control layer will be required in most forms of construction – see individual product and application data.

Fire Properties

Jablite EPS can be supplied with Class E 'flame-retardant' additive material.

Biological Properties

EPS will not sustain mould growth, and has no nutrient value to insects or vermin. The material is non-biodegradable and care should be taken to dispose of waste and off cuts at a licensed waste site.

Thermal Properties

Coefficient of linear expansion: 0.6×10^{-6} °C.

The material is sufficiently resilient and flexible that no allowance needs to be made for thermal expansion in the method of insulation.

Jablite EPS is suitable for meeting, and in many cases exceeding, the thermal insulation requirements set out in the Building Regulations Approved Documents:

L1A

Conservation of fuel and power in new dwellings

L1B

Conservation of fuel and power in existing dwellings

L2A

Conservation of fuel and power in new buildings other than dwellings

L2B

Conservation of fuel and power in existing buildings other than dwellings

Reference can be made to individual products sections to obtain specific details on meeting thermal values with Jablite products.

Working temperature range

EPS can be used within the temperature range -150°C to +80°C.

Jablite EPS is unaffected by the normal range of climatic temperatures and can be safely used in cold stores and similar applications.

During installation, and in service, contact with hot-water pipes or other surfaces where the temperature is likely to exceed 80°C for continuous periods should be avoided.

Typical Properties

Jablite Type					
	EPS70	EPS100	EPS150	EPS200	EPS250
Mechanical Properties					
Compressive strength @ 10% compression (kPa)	70	100	150	200	250
Compressive strength @ 1% nominal strain (kPa)	20	45	70	90	100
Bending strength (kPa)	115	150	200	250	350
Moisture Properties					
Water vapour diffusion resistance factor μ	20-40	30-70	30-70	40-100	40-100
Water vapour permeability δ mg/(Pa.h.m)	0.015-0.030	0.009-0.020	0.009-0.020	0.006-0.015	0.006-0.015
Vapour resistivity (MNs/gm)	145	200	238	238	238
Thermal Properties					
Thermal conductivity	0.038	0.036	0.035	0.034	0.034

(W/mK, at 10°C)					
Thermal resistivity (mK/W)	26.32	27.78	28.57	29.41	29.41

Compatibility with other materials

EPS is soluble in aromatic, halogenated solvents and ketones; it should be protected from contact with hydrocarbons and strong solvents using a suitable membrane.

EPS should not be permitted to come into contact with PVC-sheathed electrical cables since this will lead to migration of plasticiser from the PVC resulting in embrittlement of the cable sheath. Cables should be protected by the use of a physical barrier, for example by being enclosed in a conduit or by an air gap.

Service Life

Providing it is correctly installed and protected, Jablite will remain effective for the life of the building.

Storage

Store Jablite boards under cover, protected from high winds and out of direct sunlight.

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