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Airpacks Ltd Manufacturer of Expanded Polystyrene
White EPS 300: Passive Slab Ultra Ultra Heavy Density Technical Data Sheet

Manufactured to BS EN 13163:2012 Thermal Insulation products fro buildings – Factory made products of expanded polystyrene (EPS) - Specification

Physical Properties of Airpacks Expanded Polystyrene Ultra Ultra Heavy Density White Material

Basis of Design

The load bearing elements of the insulated foundations are made from high-strength expanded polystyrene, namely EPS 300. The '300' signifies the short-term load, in kPa, that causes a 10% compression of the expanded polystyrene (EPS). However, at this level of loading, the EPS has exceeded its 'yield point', so accepted best practice is to use the 1% compression load, i.e. the load that causes the EPS to compress by 1%. The industry-accepted 1% compression load for EPS 300 is 120 kPa.

The load exerted on the top surface of the EPS 300 spreads through the EPS at an approximate angle of 45 degrees (this only holds true for shallow depths), provided the EPS 300 extends far enough beyond the concrete element on top of it. Thus the load, when transferred to the ground under the EPS, is spread over a larger area, reducing the intensity of the load.

Property	Declared Value	Test Method
Long Term Water absorption by diffusion	WD (V) 10 (less than 10%)	EN12088
Dimensional Stability	DS(N) 2	EN 1603
Thermal conductivity 'ג' value 40 kg/m³ Thermal Resistance at 40 kg/m³ 60mm 70mm 110mm	 0.033 W/mK 1.98 m²K/W 2.31 m²K/W 3.63 m²K/W	EN 12667
Water vapour diffusion resistance factor ג	40 to 100 (EPS 300)	Tabulated Value
Water vapour permeability ג	0.007 – 0.018 mg/(Pa.N.M)	Tabulated Value

Water vapour penetration and condensation risk

Airpacks Expanded Polystyrene has a significant resistance to the passage of water vapour therefore minimising the risk of condensation when in use.

Durability

Airpacks Expanded Polystyrene products are rot-proof and durable. The products are judged to be stable and will remain effective as an insulation system for the life of the building once installed properly. Airpacks Expanded Polystyrene will retain its laminate performance over the lifetime of the building.

General Data

1. Use of Substance

Used primarily for foamed thermal insulation and for extensive range of cushioning and insulation packaging. Finished goods are based on a moulding process that makes use of steam.

2. Hazard Identification

Expanded Polystyrene products although combustible are unlikely to become ignited unless exposed to naked flames.

3. First Aid Measures

Eyes: Irrigate immediately with copious amounts of water until clear. If irritation persists obtain prompt medical attention.
Skin: Not applicable
Ingestion: Will pass through system without breaking down.

4. Fire Fighting Measures

Carbon dioxide, Dry chemical powder, Foam, Halon. Do not use water jets, spray only. Hazardous Combustion – Smoke, Oxides of Carbon.

5. Physical and Chemical Properties

Density: 40 kg per cubic metre.
White in colour.
Product is none abrasive.

6. Stability and Reactivity

Not applicable

7. Toxicological Information

Expanded Polystyrene is CFC and HCPC free material and is physically and chemically inert. It contains no known biological or physiological irritant.

8. Cutting & Shaping

Expanded Polystyrene boards contain residual amounts of Pentane (<1%wt), Styrene Monomer and Hydrogen Bromide (FRA Grades only). When forming, cutting or shaping care must be taken to avoid ignition by burning or hot-wire cutting methods. During hot-wire cutting, adequate ventilation must be provided to prevent respiratory tract and eye irritation which may be caused by any fumes which may be generated.

9. Disposal Considerations

Expanded polystyrene may be recycled or placed in an approved licensed landfill.

10. Behaviour in Fire

Airpacks Polystyrene Insulation is available in two grades.

Grade N = Normal Type used for domestic and industrial insulation and is suitable for most applications.

Grade A = FRA: Flame Retardant Additive. This renders material more difficult to ignite and is auto extinguishable.

The fire rating of a structure is taken as the fire rating of the product on the outer surface. This being the surface that comes into direct contact with a flame.

When subjected to a constant heat of 230°C and above, EPS emits inflammable vapours which will easily and quickly ignite. Melting point is 200°C and ignition temperature in the air is 350°C.