



**INSULATION
INDUSTRIES**

Styrene Data Sheet*.

What is Isoboard?

ISOBOARD extruded polystyrene rigid foam, has closed cells with common sides and is produced on a continuous, fully automated extrusion process, in accordance with international specifications and standards.

The cost of energy and demand for air-conditioning in buildings is constantly increasing. One of the best ways to conserve energy is to provide high class insulation for buildings.

The ever increasing costs of heating and cooling dwellings, workplaces, livestock and storage facilities, highlights the need for effective, long-lasting insulation. Insulation should be viewed as a long-term investment.

With increased energy conservation becoming more and more important, the ability of the product to effectively insulate a building - of whatever type - is equally important.

This is exactly what ISOBOARD® achieves. And what is more the product outperforms its competitors when comparing long term retention of thermal resistance.

Benefits

ISOBOARD® thermal insulation is a high density, rigid, extruded polystyrene insulation board. It has a 100% closed cell structure and is produced on a fully automated extrusion process - in accordance with international specifications and standards.

In controlled environments e.g. air-conditioned office blocks, wine cellars, etc., the product's payback period ranges from 3 - 5 years, due to savings on energy costs.

With the manufacturing of this product, the use of advanced, state-of-the-art technology makes it possible to guarantee exceptional properties such as:

- high resistance to heat flow i.e. conductivity,
- resistance to water vapour diffusion and water absorption,
- uniform density distribution,
- very high compressive strength,
- ageing resistance,
- resistance to bacteria and
- Micro-organism growth.

As a result of all these, as well as many other benefits, ISOBOARD® is sufficiently versatile to make it an innovative and cost effective alternative to conventional insulation products. It also means that ISOBOARD® can be used in various applications in numerous different markets.

Applications

ISOBOARD® is ideal for energy conservation and efficiency in all types of industrial or commercial buildings and in dwellings. Other applications include warehousing and factories, agricultural sheds (where clean and healthy environments are essential), cold storage, cavity wall insulation, flooring, dry lining and sandwich panels with various laminates.

Installations

- **Inverted Roof System**
ISOBOARD® is placed above instead of below the waterproofing membrane. This system protects the reinforced concrete slab as well as the waterproofing membrane against thermal shock, thereby extending the life of both
- **Cavity Wall Insulation**
ISOBOARD® is placed in the cavity to prevent inside walls from heating up in the summer and cooling down in the winter. This helps in providing you with comfortable living temperature inside any building
- **Over purlin insulation**
ISOBOARD® rigid roof liner supplied with tongue and groove edge profiles generally eliminate the need for "H" / "T" sections normally used for joint supports, or straining wires. A 5mm gap is required when boards are joined on purlins.
- Below slab / soffit
- Under batten (over truss)
- Under Floor
- Side cladding

Advantages

- ISOBOARD® retards heat flow into buildings in summer.
- ISOBOARD® keeps heat inside buildings during winter.

Physical properties

PROPERTY	
Thermal Conductivity	ISOBOARD'S homogeneous cell structure, skin faces and vapour diffusion prevents any convective motion within the board. This structure also mitigates against any ageing, resulting in stable, low, long term thermal conductivity of 0.030 W/m K at 24°C for ND product.
Resistance to Water and Vapour Penetration	ISOBOARD has a closed cell structure with no interstitial space and an outer skin of denser material. This, combined with the lack of voids and capillaries, ensures that it is almost impossible for water and water vapour to enter the board.
Compressive Strength	The cellular structure of ISOBOARD ensures a high compressive strength.
Fire Behaviour	ISOBOARD contains a flame retardant additive which, when tested in accordance with DIN. 4102, enables classification as a B1 building material.
Dimensional Stability	The regularity and homogeneity of ISOBOARD'S cellular composition ensures dimensional stability.
Chemical Resistance	ISOBOARD is stable and has good resistance to acids, bases, cold bitumen, silicon oils but is unstable to tars, organic solvents, hydrocarbon gasoline and oil-based paints.
Cutting/Fixing	ISOBOARD can easily cut with wood working tools (a wavy blade is preferable), mechanically fixed and bonded with suitable adhesives (e.g. styrene acrylic compounds such as Supa Nails or epoxy compounds such as Araldite, Epoxy Plus).
Biological Effects	ISOBOARD is resistant to bacteria, micro organisms, insect and rodent attack.

PROPERTIES	STAND'D	ND ISOBOARD
Density	DIN 53420	32 – 35 kg/m ³
Thermal Conductivity - fresh as manufactured at 4.4°C test temp	DIN 52612 or DIN 52616	0.016 W/m K
Thermal Conductivity - laboratory value at 10°C test temp	ASTM C177 or ASTM C518	0.027 W/m K
Thermal Conductivity - 5 years aged at 24°C mean temp	ASTM C177 or ASTM C518	0.030 W/m K
Compressive strength at 10% deflection	DIN 53421	220 – 360 KPA *
Water vapour diffusion resistance factor	DIN 52615	100 – 225 *
Water vapour permeability	ASTM C 355	0.4–0.6 per inch
Water absorption by submersion • 28 days submersion of whole board • +/- 1% by vol. precision	DIN 53428 ASTM D2842	0.2 % by vol. 1.00 % by vol
Capillarity		Nil
Flammability	DIN 4102	B1 (difficult to ignite)
Linear coefficient of thermal expansion and contraction (Heat soaking conditions)		$70 \times 10^{-6} \text{ }^{\circ}\text{C}^{-1}$

Applications

- **Agricultural:** Chicken and Turkey Sheds, Piggeries, Mushroom Farms, Fish Farms, Wineries, Apiaries
- **Storage:** Cool Rooms, Truck Bodies, Refrigeration
- **Construction - Residential - Commercial:** Under Concrete Slabs, Roofs, Walls, Suspended concrete Slabs

SIZES Width: 600mm
 Length: 2500mm

THICKNESS 25 mm, 30 mm, 40 mm, 50 mm, 75 mm, 100 mm
 (100 straight edge only) Other thicknesses available on application.

EDGE PROFILES : Tongue & Groove, Straight edge

COLOURS : Blue

Storage and handling

Unused materials should be stored in covered areas away from direct sunlight and ultra-violet rays.

Insulation boards once placed on the roof should not be left exposed. It is recommended that the insulation be immediately covered with the follow up system - e.g.: paving slabs, screed, sheeting, etc. to avoid possible degradation.

Dust could settle on the face of the board if stored in dusty conditions. Wipe clean with damp cloth before installation.

Soot from diesel smoke could be attracted to the product. If you envisage construction plant in the vicinity after board has been installed, then wipe board down with damp cloth in water softener solution available from us, **before** installation.

Surface damage can be expected if product is not handled with care.

Boards are marked indicating exposed face. Boards fitted with exposed faces on same side will result in smooth surfaces.