

# ISOFOAM<sup>®</sup>

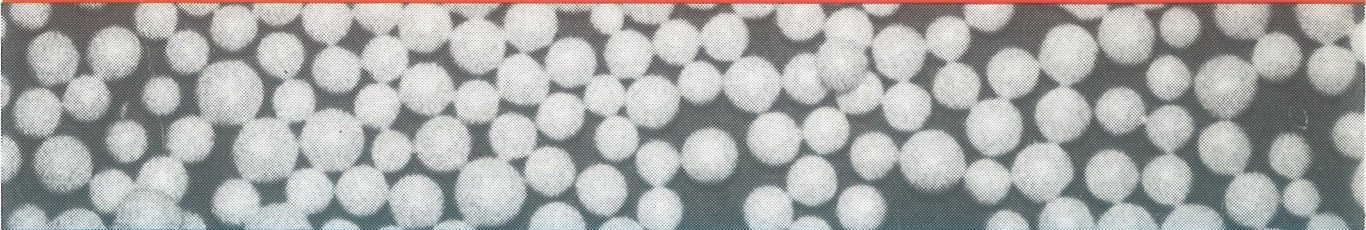
## <sup>®</sup> Styropor

Expandable Polystyrene

Consultants

Contractors

Engineers



Cold Stores - Roof Insulation  
Air - Conditioning - Refrigeration  
Expansion Joints - Packing

LT. WT. Concrete - Panels - Partitions  
False ceilings - Furniture  
Pre. - Fab. houses - Shuttering

Decoration



# 4 million air cells per cu. in. = ISOFOAM the most economical and most efficient insulating material

## Introduction

ISOFOAM or expanded polystyrene is a styrene base plastic material having a rigid white foam-like texture comprising not less than 4 to 6 million closed cells per liter. It offers a variety of unique properties never combined in any other material:

Its honeycomb texture of closed cells makes it a homogeneous material with the highest thermal insulating power.

It is rigid but extremely light in weight: 1 to 1½ lb/ft<sup>3</sup>. (The lightest of the plastic materials).

It can however be made heavier depending on the mechanical resistance required.

It is a stable material and it does not age.

It is unaffected by acids, alkali, alcohol and sea water.

It does not rot and is not attacked by rodents. It does not however withstand temperatures exceeding 90°C.

## Applications

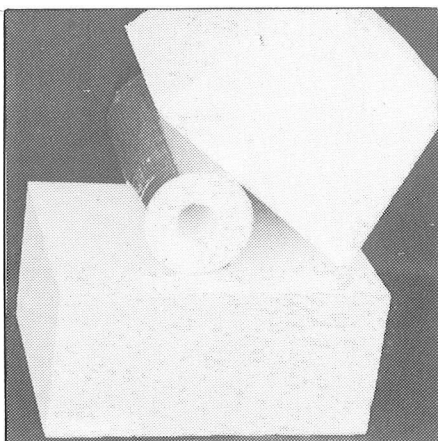
### Building:

ISOFOAM as thermal insulation – and impact noise insulation – is the most efficient insulating material used in the building industry, for insulating walls, floors, ceilings, roofs, and hangars.

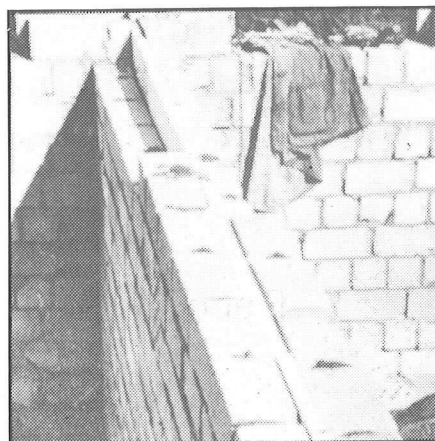
It is also used in the building as expansion – joints, as a permanent concrete filler and in sandwich panels for the pre-fabrication field etc...

As ceiling tiles, besides their insulating power, they have an attractive appearance.

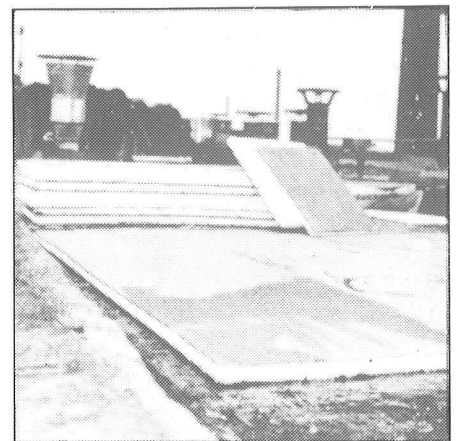
Void Formers: ISOFOAM for money saving and ease of handling is cut to suit the shape of ribbed slab.



Insulation of walls: ISOFOAM has given the best results when used to insulate apartment buildings.



Roofing material: The outstanding qualities of ISOFOAM make it the most recommended insulating material for roofs.



## Characteristic properties of foamed materials made from Isofoam (Expandable Polystyrene)

PROPERTY (AVG)	STANDARD	UNIT			
DENSITY	ASTM D1622	KG/M3	18-20	23-25	28-30
THERMAL CONDUCTIVITY AT 10°C.	ASTM C177	BTU/SQ.FT./HR 1°F / IN	0.23-0.25	0.21-0.24	0.20-0.23
THERMAL CONDUCTIVITY AT 40°C.	ASTM C177	BTU/SQ.FT./HR °F / IN	0.25-0.29	0.24-0.28	0.23-0.27
COMPRESSIVE STRENGTH AT 10% DEFLECTION	ASTM D1621-73	KG/M3	0.9-1.7	1.5-2.2	1.9-2.5
WATER VAPOUR PERMEABILITY	ASTM C355	PERM IN	1.2-0.4	1.0-2.0	0.6-1.2
WATER ABSORPTION	ASTM D2892	% BY VOLUME	2-6	2-4	2-4
CO-EFFICIENT OF LINEAR THERMAL EXPANSION	ASTM D696	10-5 IN/IN/°F	3-4	3-4	3-4

\*\* Sheet thickness 3 cm; test temperature: 20° C; rel. humidity gradient 85 %.  
\*\*\* Heat flow measurement principle

Coefficient of Expansion:  $8 \times 10^{-6}$  per °C.

Acoustical Properties: 35 to 98 % sound absorption depending on frequency, and the kind of construction.

Fire Resistance: In standard quality it is flammable. (It can however be supplied as self-extinguishing upon demand).

Furthermore ISOFOAM is much used for decorative work. Because of its low density and easy workability it keeps suggesting new applications to those who work with it.

### Refrigeration:

ISOFOAM does not need any introduction in the refrigeration field – it has already proven itself for over 15 years. – It is the most widely used insulation for refrigerated rooms, freezers, trucks, piping and air ducting.

**Refrigeration:** ISOFOAM insulating boards have given their proof – over 15 year – as the best insulating for cold rooms and freezers.



### Packaging:

Because of its advantageous characteristics, its nice appearance and particularly its impact absorbing properties, ISOFOAM has become the ideal packaging material.

### Flotation:

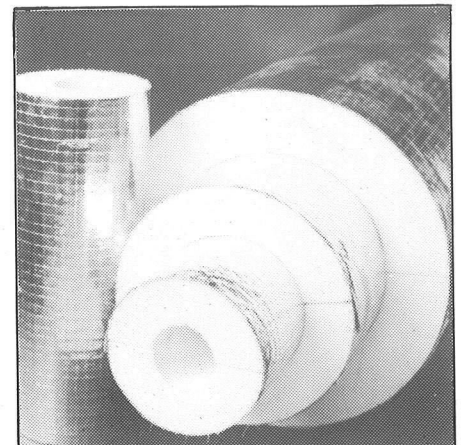
Due to its negligible weight, ISOFOAM has a great buoyancy and with its rigidity and impermeability it has become widely used in the flotation field under various forms and shapes.

**Decoration:** ISOFOAM ceiling tiles constitute an excellent thermal and acoustical false ceiling.



ISOFOAM is characterised by the following:  
High thermal insulation value.  
Resistance to decay, age and water. Low water vapour transmission.

**Air-conditioning:** ISOFOAM is currently used in the insulation of ducting and cold piping.



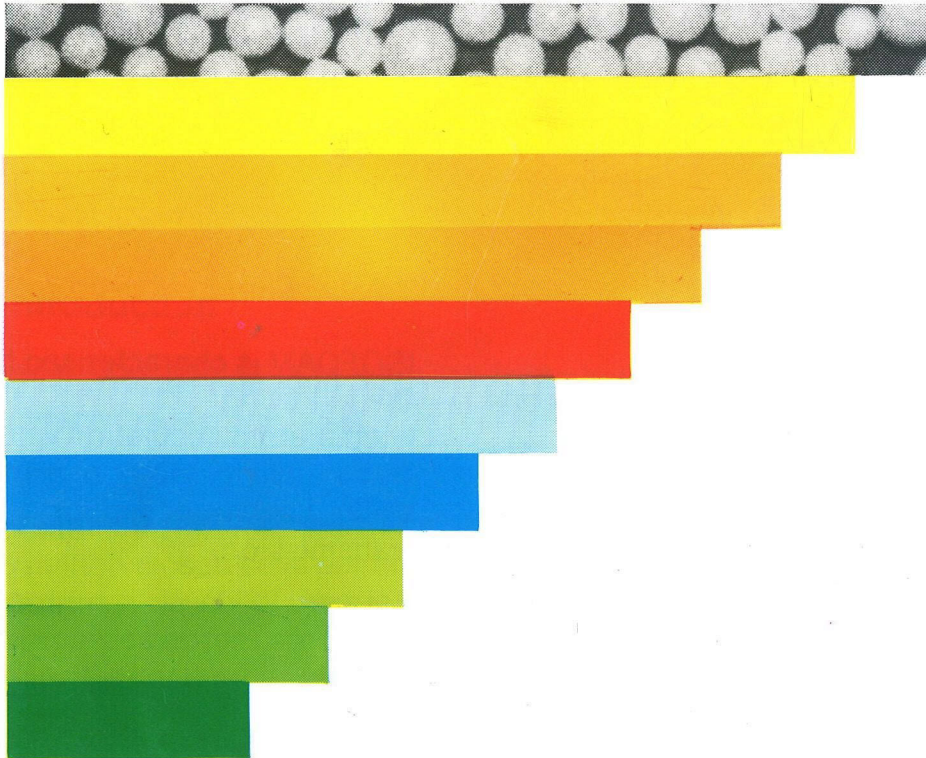
# Resistance to Heat Transmission

(Comparative table for various Materials)

$$\frac{T_1}{T_2} = \frac{\alpha_1}{\alpha_2}$$

$\alpha$  = Thermal conductivity

T = Thickness



ISOFOAM

Glass fiber

Cork

Vermiculite (raw form)

Pressed straw

Agglomerated wood

Ordinary wood

Foamed concrete

Brick

Reinforced concrete

## Workability

### Cutting and shaping

of ISOFOAM, is extremely easy. It can be cut with ordinary wood or metal saws, with a fine blade and especially with the Hot Wire – or electric resistance – which produces exceptionally smooth cut surfaces.

### Bonding:

ISOFOAM will adhere to itself or to a wide variety of materials through the use of adhesives containing other than petroleum-derived solvents.

### Painting:

ISOFOAM can easily be painted but only with latex, water or epoxy paints. ISOFOAM can be supplied originally colored on special demand.