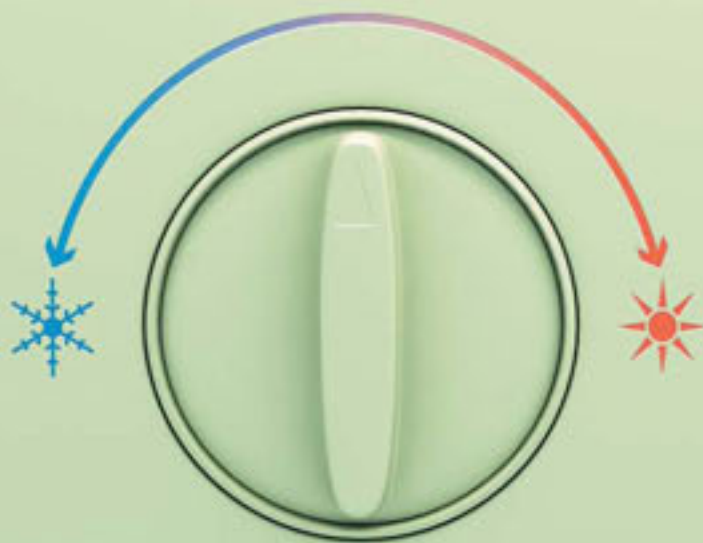


 **BASF**

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Europe's green insulation

**Styrodur® C**

BASF Plastics  
key to your success

 **BASF**  
The Chemical Company

□ **"Styrodur® C,  
Environmentally friendly  
extruded polystyrene free of  
CFC, HCFC, and HFC – filled  
with air."**



■ **Thermal insulation does  
more than protect the  
climate**

Effective thermal insulation with Styrodur® C makes an important contribution towards reducing emissions of carbon dioxide (CO<sub>2</sub>), the main greenhouse gas responsible for global warming. Styrodur® C reduces energy consumption, with the result that investment in thermal insulation can be recouped within a short time. Buildings that are insulated with Styrodur® C are more healthy and comfortable to live in, and the fabric of the building is protected from the effects of high and low temperatures and from moisture. This prolongs the life of buildings and enhances their value. Styrodur® C is the environmentally friendly insulating material with added value.

■ **BASF's contribution to  
environmental  
protection**

BASF is the largest chemical company in the world and leads the field in research into insulation systems and the development of environmentally friendly solutions. BASF is still the only company that has given a voluntary undertaking to exclusively supply XPS that is free of CFC, HCFC, and HFC. Styrodur® C is environmentally friendly, because its cells are filled with air.

□ **Europe's green insulation  
Styrodur® C**



*"Styrodur® C is a synonym in Europe for XPS, owing to its high compressive strength, its long working life and its resistance to decay"*



### **Styrodur® C ■**

#### **- The first choice of architects and engineers**

For over forty years, Styrodur® C has been the first choice of architects and engineers for protecting building from extremes of temperature and from moisture. Styrodur® C conforms to building standards all over Europe and fulfils the demands of different climatic conditions. Styrodur® C is environmentally friendly: it is free of ozone-depleting CFC, HCFC, and HFC. Its cells are filled with air.

### **Styrodur® C ■**

#### **- The versatile solution for the building trade**

The versatility of Styrodur® C is appreciated by the building trade throughout Europe on account of its outstanding properties and the ease with which it can be installed. The comprehensive series of products in the Styrodur® C range can be adapted to accommodate all local building cultures and traditions, and they can be installed in all weather. BASF has built up a logistics network that covers the whole of Europe with a professional customer service provided by local distributors.



## **Styrodur® C ■** **- The ideal product** **for builders' merchants**

Styrodur® C is subjected to extensive quality assurance tests.

It carries the CE and Ü marks, which guarantees that it fulfils the same high standards of quality all over Europe. The high

performance of Styrodur® C and

BASF's extensive European distribution network ensure that it is always in demand by architects, engineers and the building trade.

Builders' merchants can rest assured that the required product

is always in stock, thanks to

BASF's logistics system that integrates production, transport and warehousing.

## **□ Styrodur® C -** **An essential stock item** **for all builders' merchants**

*"Over forty years on the market and more than 25 million m<sup>2</sup> installed in Europe each year is proof of Styrodur® C's success"*



## ■ Styrodur® C - A product for Europe

The excellent performance of Styrodur® C green polystyrene foam insulation board and its versatility make it the first choice for the construction and civil engineering industry across the whole continent.

## ■ Europe's green insulation Styrodur® C

- Protects the climate
- Reduces energy consumption
- Gives greater comfort
- Enhances the value of buildings



Perimeter insulation



Inverted roofs



Cold bridge insulation



Floor insulation



Cavity wall insulation



Pitched roof insulation



Ceiling insulation



Frost protection under roads and railways

□ The most effective insulation for all building applications all over Europe

BASF



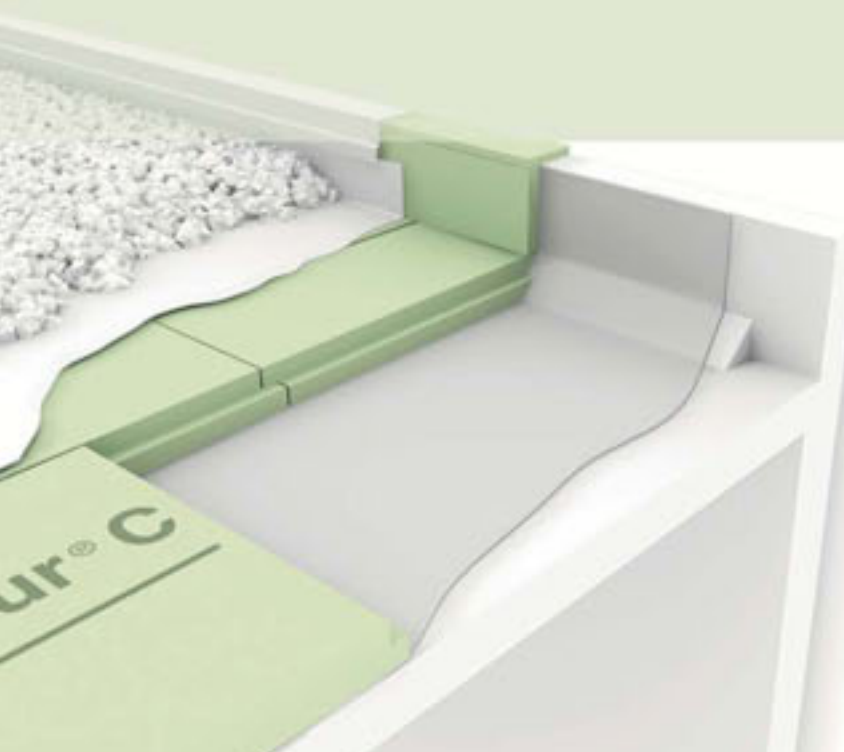
## Perimeter insulation



Insulating the perimeter of foundation walls in contact with the earth is a very effective means of preventing heat loss through the foundations of buildings. Styrodur® C is a very appropriate choice for this application, because it has all the features that are demanded by applications below ground: low moisture absorption, high compressive strength, high thermal insulation and its resistance to decay. Styrodur® C can also be laid under load-bearing floor slabs and it can be used in applications in which it comes into contact with groundwater.

- Styrodur® C provides excellent protection against heat and freezing, and it is ideal for use on inverted roofs in all climatic zones. The inverted roof is a flat roof construction and its main feature is that, unlike in conventional flat roof designs, the thermal insulation is laid above the moisture sealing. Any type of deck or ballast can be selected, which allows it to be used for gravelled roofs, terraced roofs, green roofs or parking roofs.

## Inverted roofs



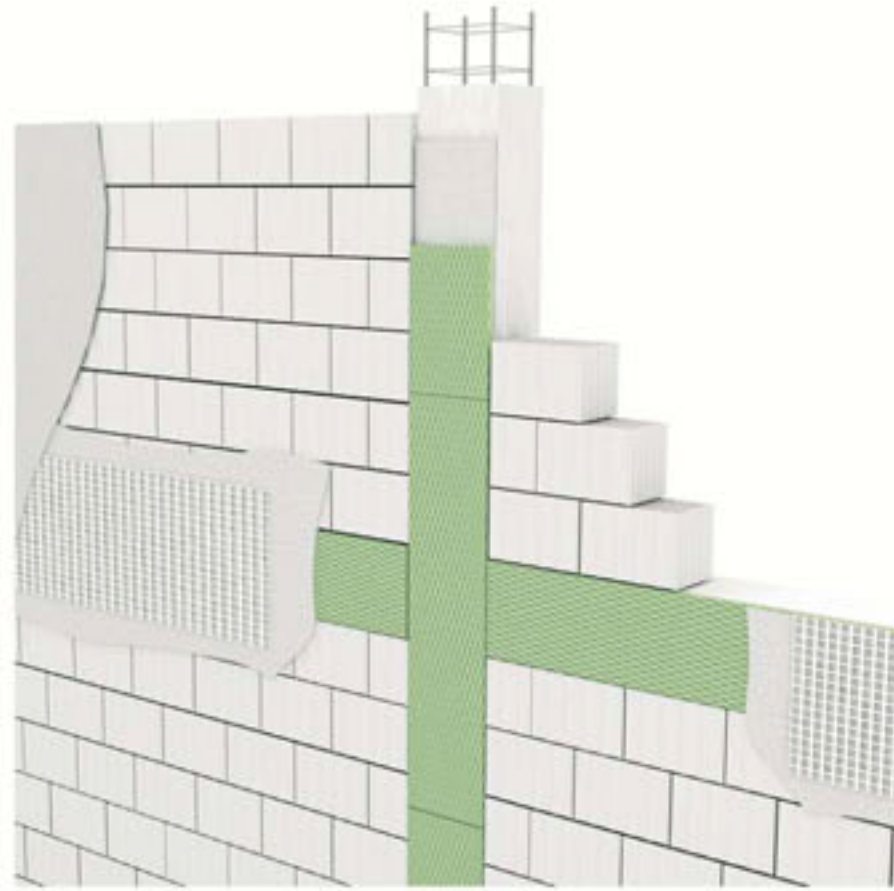
Styrodur® C can also be used for plus roofs and duo roofs. The plus roof is a special kind of inverted roof that is often applied on top of existing warm roof constructions in order to improve their thermal insulation performance.

The duo roof combines the properties of conventional warm roof and inverted warm roof constructions, and it is used on new buildings in cases in which very high standards of thermal insulation are demanded.



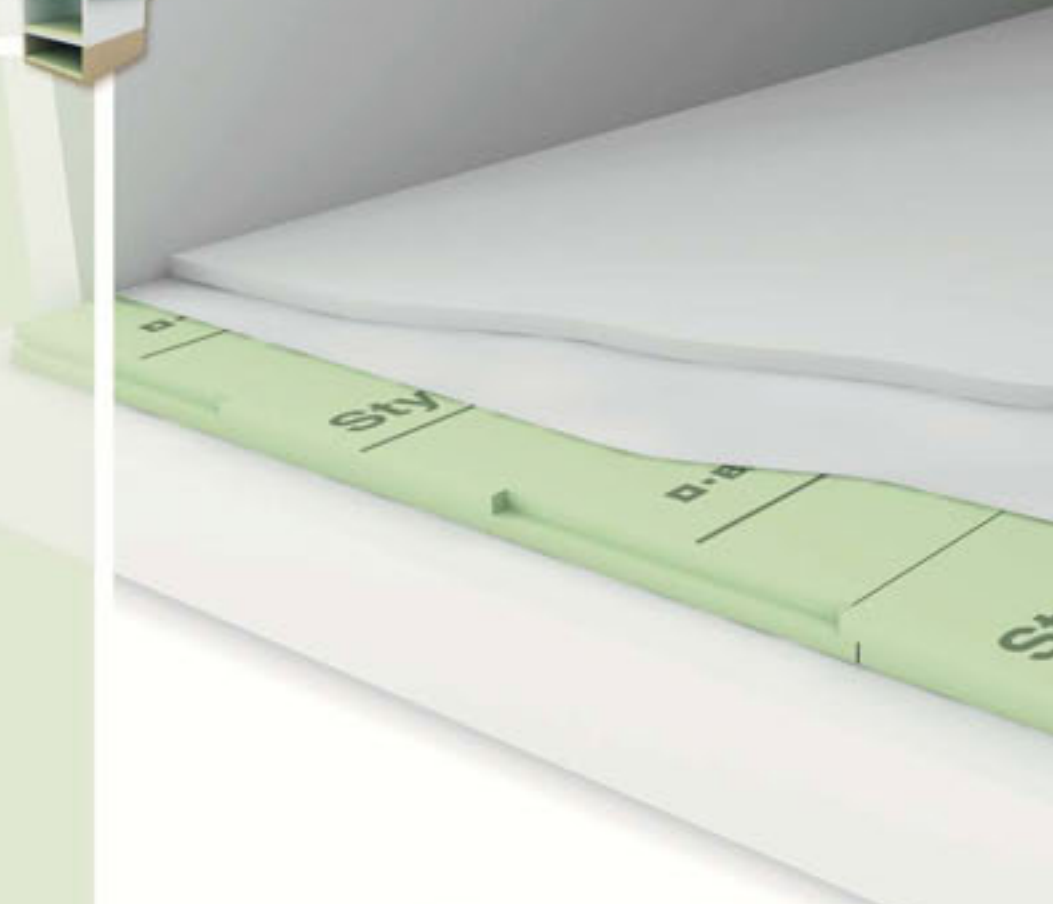
## Cold bridge insulation

Concrete beams and pillars in masonry form cold bridges because of their ability to conduct heat. Styrodur® 2800 C is very effective for insulating cold bridges because of its embossed surface texture. It can be glued on or laid under plaster, or it can be placed in the formwork when the concrete is cast.



## Floor insulation

Styrodur® C is very effective for use as floor insulation because of its high compressive strength. It can be used to insulate floors that are subjected to heavy loads, such as in warehouses, workshops or even in aircraft maintenance hangars.





## Cavity wall insulation



- Cavity walls have traditionally been a feature of buildings in many parts of Europe. Styrodur® 3035 CN is very effective for insulating cavity walls, with or without an air space, because of its low moisture absorption, its high insulating performance and its long working life.



## Pitched roof insulation



- Pitched roofs can be insulated with Styrodur® C to ensure a comfortable indoor climate all year round. Styrodur® C can be installed in a continuous layer above the rafters, which guarantees that there are no thermal bridges.



## Ceiling insulation



Styrodur® 3035 CN can be used to insulate ceilings. These large tongue-and-groove boards can be installed quickly and easily. They have an attractive appearance and they are easy to clean. ■

## Frost protection under roads and railways

■ Styrodur® C can be laid under roads and rail tracks to protect them from frost damage. Styrodur® C is distinguished by its high compressive strength, low moisture absorption and high thermal insulation performance and resistance to decay. Styrodur® C helps to reduce maintenance costs as well as preventing frost damage.



## ■ Recommended applications

Styrodur® C	2500 C	2800 C	3035 CS	3035 CN	4000 CS	5000 CS
Load bearing floor slabs*			■		■	■
Domestic floors	■	■	■			
Load bearing floors	■	■	■		■	■
Perimeter* floor slabs			■		■	■
Perimeter* basement walls			■		■	■
Perimeter*/subsoil water areas			■		■	■
Cavity walls	■		■	■		
Internal walls		■				
Lost formwork		■				
Cold bridges		■				
Exterior basement wall insulation		■				
Plaster base		■				
Inverted flat roofs			■		■	■
Duo roofs			■		■	■
Plus roofs			■		■	■
Parking decks					■ <sup>1)</sup>	■
Promenade roofs			■		■	■
Roof gardens			■		■	■
Conventional flat roofs	■		■		■	■
Parapet walls	■	■	■			
Pitched roofs	■	■		■		
Ceilings				■		
Plasterboard laminates		■				
Sandwich panels	■	■				
Warehouses	■		■	■	■	■
Roads and railways			■		■	■
Ice rinks			■		■	■

Styrodur® C: Extruded polystyrene foam conforming to DIN EN 13164  
Free of CFC, HCFC, and HFC







\* = Insulation in direct contact with the ground

1) Not for installation under concrete paving stones



# Styrodur® C

■ Europe's green insulation

Property	Unit <sup>①</sup>	Code according to DIN EN 13164	2500 C	2800 C	3035 CS	3035 CN	4000 CS	5000 CS	Standard	
Edge profile										
Surface			skin bzw.	embossed	skin bzw.	skin bzw.	skin bzw.	skin bzw.		
Length x width	mm		1250 x 600	1250 x 600	1265 x 615	2515 x 615 <sup>④</sup>	1265 x 615	1265 x 615		
Density	kg/m <sup>3</sup>		30	30	33	33	35	45	DIN EN 1602	
Thermal conductivity	$\lambda_D$ [W/(mK)]		$\lambda_D$		$\lambda_D$		$\lambda_D$		$\lambda_D$	
Thermal resistance	$R_D$ [m <sup>2</sup> K/W]		$R_D$		$R_D$		$R_D$		$R_D$	
Thickness			0,032	0,65	0,032	0,65	-	-	-	-
	20 mm	-	0,032	0,95	0,032	0,95	0,032	0,95	0,032	0,95
	30 mm	-	0,034	1,25	0,034	1,25	0,034	1,25	0,034	1,25
	40 mm	-	0,034	1,50	0,034	1,50	0,034	1,50	0,034	1,50
	50 mm	-	0,034	1,80	0,034	1,80	0,034	1,80	0,034	1,80
	60 mm	-	-	-	0,036	2,30	0,036	2,30	0,036	2,30
	80 mm	-	-	-	0,038	2,80	0,038	2,80	0,038	2,80
	100 mm	-	-	-	0,038	3,20	-	-	0,038	3,20
	120 mm	-	-	-	-	-	-	-	-	-
	140 mm	-	-	-	-	-	-	-	-	-
	160 mm	-	-	-	-	-	-	-	-	-
	180 mm	-	-	-	0,040	4,45	-	-	-	-
Compressive stress or compressive strength at 10% deformation	kPa	CS(10\Y)	200 - 300 <sup>②</sup>	200 - 300 <sup>②</sup>	300	300	500	700	DIN EN 826	
Compressive creep over 50 years at < 2% deformation	kPa	CC(2/1,5/50)	80 - 130 <sup>②</sup>	80 - 100 <sup>②</sup>	130	-	180	250	DIN EN 1606	
Certificated compressive stress under load bearing floor slabs	kPa	-	-	-	130	-	180	250	DIBT Z-23.34-1325	
Adhesive strength on concrete	kPa	TR 200	-	>200	-	-	-	-	DIN EN 1607	
Shear strength	kPa	SS	>300	>300	>300	>300	>300	>300	DIN EN 12090	
Compressive modulus of elasticity	kPa	CM	20.000	15.000	20.000	20.000	30.000	40.000	DIN EN 826	
Dimensional stability 70° C; 90% r.h.	%	DS(TH)	≤ 5%	≤ 5%	≤ 5%	≤ 5%	≤ 5%	≤ 5%	DIN EN 1604	
Deformation behaviour: load 20 kPa; 80 °C	%	DLT(1)5	≤ 5%	≤ 5%	≤ 5%	≤ 5%	≤ 5%	≤ 5%	DIN EN 1605	
Deformation behaviour: load 40 kPa; 70 °C	%	DLT(2)5	≤ 5%	≤ 5%	≤ 5%	≤ 5%	≤ 5%	≤ 5%	DIN EN 1605	
Linear coefficient of thermal expansion										
Longitudinal	mm/(mK)	-	0,08	0,08	0,08	0,08	0,08	0,08	DIN EN 53752	
Transverse		-	0,06	0,06	0,06	0,06	0,06	0,06		
Reaction to fire	Class	-	E	E	E	E	E	E	DIN EN 13501-1	
Long term water absorption by immersion	% v/v	WL(T)0,7	0,2	0,3	0,2	0,2	0,2	0,2	DIN EN 12087	
Long term water absorption by diffusion <sup>②</sup>	% v/v	WD(V)3	2,4	-	2-4	2 - 4	2 - 4	2 - 4	DIN EN 12088	
Water vapour transmission <sup>②</sup>		MU	150 - 50	200 - 80	150 - 50	150 - 100	150 - 80	150 - 100	DIN EN 12086	
Freeze-thaw-resistance	% v/v	FT2	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	DIN EN 12091	
Maximum service temperature	°C	-	75	75	75	75	75	75	-	

① N/mm<sup>2</sup> = 1MPa = 1000 kPa    ② Depends on thickness    ③ Thickness ≥ 30 mm    ④ Thickness 30 mm and 40 mm: 2510 x 610 mm

## ■ Note

The information submitted in this publication is based on our current knowledge and experience at the time of going to press. It does not imply any legally binding assurance. Attention must be paid to the demands of specific applications, especially the physical and technological aspects of construction and building regulations.

# ■ Styrodur® C



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