

**Safe. Strong.
Sustainable.**





TESTED AND CERTIFIED STYRODUR®

After the Ü mark was abolished, BASF opted for voluntary product certification. In the process of KEYMARK certification, an accredited laboratory gathers samples from production sites and warehouses and carries out a rigorous examination of all the properties listed in the DoP (Declaration of Performance). In addition to the KEYMARK logo, which verifies the product's conformity with the European standard EN 13164, tests have also been carried out in accordance with the German standard DIN 4108-10 ("DIN-Geprüft" logo).

General information about Styrodur®

Company name: BASF SE
Address: 67056 Ludwigshafen, Germany
Contact: styrodur@basf.com
Website: www.styrodur.com

Quality labels: DIN-Geprüft

http://www2.basf.de/basf2/img/produkte/kunststoffe/styrodur/downloads2/de/styrodur_keymark.pdf

Quality management standard: ISO 9001:2008

http://www2.basf.de/basf2/img/produkte/kunststoffe/styrodur/downloads2/de/Certificate_ISO_9001_BASF_2008_G-PMF_BASF_SE_incl_BSW.pdf

Declaration of Performance (DoP):

<http://www2.basf.de/en/produkte/plastics/schaum/dop.htm>





PRODUCT INFORMATION

Styrodur® is an extruded rigid polystyrene foam produced in accordance with DIN EN 13164 in the form of insulation boards in the density range between 30 and 50 kg/m³. Styrodur® is foamed exclusively using CO₂ and does not contain any SVHCs. (SVHC: substance of very high concern above a limit of 0.1% w/w according to the candidate list, Article 59 (1, 10) European REACH regulation (EC) 1907/2006.)

Styrodur® is manufactured in different compressive strengths (300 kPa, 500 kPa, and 700 kPa) and produced either with smooth edges or shiplap. Further details are available on our website (www.styrodur.com).

| Property | Unit | Designation code according to DIN EN 13164 | 2800 C | 3000 CS | 3035 CS | 4000 CS | 5000 CS | Standard/ approval |
|---|-----------|--|---|------------|------------|------------|------------|--------------------|
| Edge profile | | | | | | | | |
| Surface | | | geprägt | glatt | glatt | glatt | glatt | |
| Length x breadth | mm | | 1250 x 600 | 1265 x 615 | 1265 x 615 | 1265 x 615 | 1265 x 615 | |
| Compressive strength or compressive stress at 10% deformation ¹⁾ | kPa | CS(10\Y) | 200 (20-60 mm) 300 (80-200 mm) | 300 | 300 | 500 | 700 | DIN EN 826 |
| Permissible compressive stress over 50 years < 2 % ¹⁾ | kPa | CC(2/1,5/50) | – | 130 | 130 | 180 | 250 | DIN EN 1606 |
| Fire behaviour | Euroclass | – | E | E | E | E | E | DIN EN 13501-1 |
| Water absorption with long-term immersion | % by vol. | WL(T) | – | 0,7 | 0,7 | 0,7 | 0,7 | DIN EN 12087 |
| Water absorption in diffusion test | % by vol. | WD(V) | – | 3 | 3 | 3 | 3 | DIN EN 12088 |
| Water vapour diffusion resistance factor | | MU | 200 – 80 | 150 – 50 | 150 – 50 | 150 – 80 | 150 – 100 | DIN EN 12086 |
| Water absorption after freeze-thaw cycle | % by vol. | FTCD | – | 1 | 1 | 1 | 1 | DIN EN 12091 |
| Application temperature limit | °C | – | 75 | 75 | 75 | 75 | 75 | DIN EN 14706 |

¹⁾ 100 kPa = 10 N/cm² = 100 kN/m² = 10 to/m²

²⁾ Up to 120 mm

³⁾ Up to 160 mm



PRODUCT SAFETY

Product components/composition:

- Approx. 90–95 mass percentage polystyrene (GPPS) (CAS 9003-53-6)
- Approx. 8 mass percentage blowing agent, halogen-free (carbon dioxide (CAS 124-38-9))
- Approx. >4 mass percentage polymeric flame retardant (CAS 1195978-93-8)
- Does not contain any substances of very high concern (SVHC) in compliance with the ECHA

VOC content LEED v4:

- Does not contain any emitting substances, such as coatings, binders, sealants, or adhesives
- Solvent- and softener-free according to the German Paint and Printing Ink Industry Association guideline VdL-RL 01: yes
- Lead/cadmium, chromium(VI): no
- GISCODE: no
- EMICODE: no
- Formaldehyde-free: yes
- VOC in accordance with REACH guideline 2004/42/EC. In Germany, Styrodur fulfils the requirements of the AgBB evaluation scheme (May 2012) and the DIBt requirements (October 2008) for the VOC emissions of building products
- No carcinogenic substances found

Sustainability at BASF

- Some of our basic raw materials (natural gas) are transported without emitting CO₂ via the pipeline from Russia to Ludwigshafen, Germany
- Sustainability in the supply chain
<https://www.basf.com/en/company/about-us/suppliers-and-partners/sustainability-in-procurement.html>
<https://www.basf.com/en/company/sustainability.html>
- Compliance with international occupational and social standards
<https://www.basf.com/en/company/sustainability/employees-and-society/employees/employment-conditions.html>

For more information visit:

<https://www.basf.com/en/company/sustainability.html>



ENVIRONMENTAL AUDIT

Environmental Product Declaration (EPD)



<http://www2.basf.de/basf2/img/produkte/kunststoffe/styrodur/downloads2/de/EPD.pdf>

Environmental Product Declaration in accordance with ISO 14025 and EN 15804

| | |
|--------------------|--|
| Declaration holder | Fachvereinigung Polystyrol-Extruderschaumstoff (FPX) |
| Issued by | Institut Bauen und Umwelt e.V. (IBU) |
| Programme holder | Institut Bauen und Umwelt e.V. (IBU) |
| Declaration number | EPD-FPX-20140157-IBE1-DE |
| Date of issue | 12.11.2014 |
| Valid until | 11.11.2019 |



SAFETY DATA SHEET

According to Regulation (EC) 1272/2008 [CLP]

The product is not subject to classification according to GHS criteria.

Globally Harmonized System, EU (GHS)

The product is not subject to labelling according to GHS criteria.

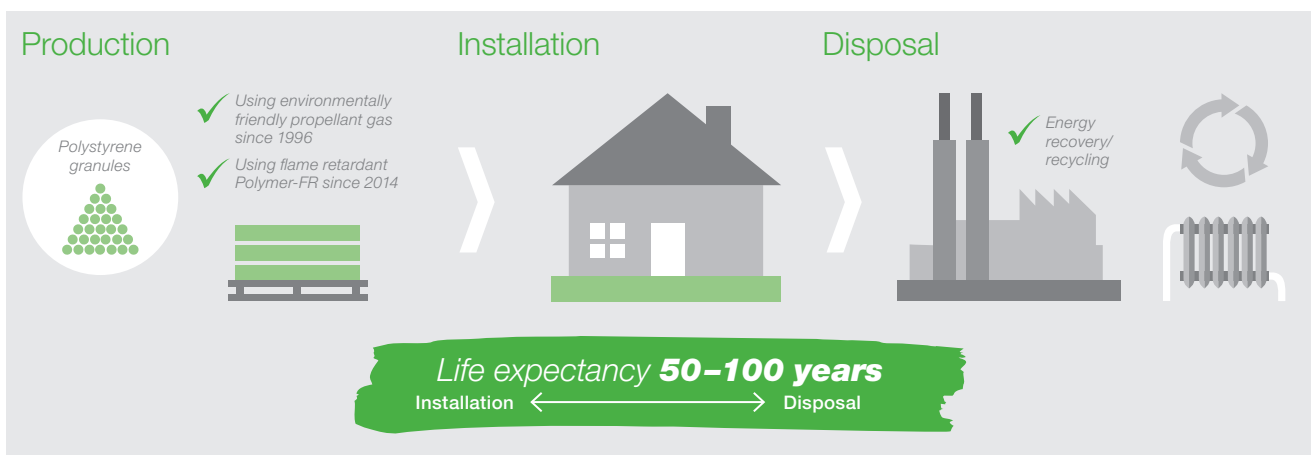
Chemical characterisation

- Contains dyes, polystyrene, and polymeric flame retardant
- CAS No. 1195978-93-8
- Hazardous ingredients (GHS)
- According to Regulation (EC) 1272/2008
- No particular hazards known.

https://www2.basf.de/basf2/img/produkte/kunststoffe/styrodur/downloads2/en/sds_3035_120_en.pdf



PRODUCT LIFE CYCLE



When a building is dismantled, Styrodur® can be used in energy recovery. The energy contained in the insulation material is thus recovered. This measure makes sense even from an ecological viewpoint. During its service life, Styrodur® contributes to saving many times the amount of energy that was used in its production.

Recycled content according to ISO 14021:

- Pre-consumer proportion (%): approx. 20
- Post-consumer proportion (%): Styrodur produced using the previous flame retardant HBCD containing POPs (Persistent Organic Pollutants) cannot be recycled and must be used for energy recovery in accordance with the Basel Convention general guidelines on POPs.
- Styrodur that has been produced (since 2015) using the new polymeric flame retardant can be easily recycled.

Regional distribution:

- Source location of raw material: the main component of the product, polystyrene, is manufactured directly at the production site in Ludwigshafen, Germany.
- Regional product: customers are supplied within a radius of 700 km.



ENVIRONMENTAL QUALITY

DGNB ENV Criterion: Risks for the Local Environment

German Sustainable Building Council (DGNB), 2015 version

| No. | Relevant building elements/building materials/surfaces | Substance/aspect under consideration | QL1 | QL2 | QL3 | QL4 |
|-----|--|--|-----|-----|-----|-----|
| 35 | Plastics for covering surfaces (floors and walls) as well as elements of the building envelope | Lead, cadmium, chromium(VI) | yes | yes | yes | yes |
| 39 | Installation foams for insulation materials | Halogenated and other blowing agents | yes | yes | yes | yes |
| 40 | Plastic foam insulation materials for buildings and building equipment | Halogenated blowing agents | yes | yes | yes | yes |
| 41 | Plastic foam insulation materials (buildings and building equipment incl. heating and cooling surfaces) | HBCD ban | yes | yes | yes | yes |
| 44 | Products made of plastics | SVHC | yes | yes | yes | yes |
| 45 | Biocides and flame-retardant building products (manufactured goods): wood treatments, wood-based materials, insulation materials | Boron compounds as a formulation component | yes | yes | yes | yes |

Optimal thermal insulation with Styrodur® makes a major contribution to reducing carbon dioxide (CO₂) emissions—the main cause of the greenhouse effect. Added to this is the benefit that investments in comprehensive thermally insulating measures pay off for builders even in the short term due to significantly lower energy consumption. Styrodur thus makes a decisive difference to the eco-efficiency of your construction project. Thermal insulation with Styrodur stands for thermal comfort, which is key to creating a healthy living environment.

Air as cell gas—a substantial contribution to environmental protection

As the largest chemical corporation in the world, BASF occupies a leading position in the research and development of environmentally friendly insulation solutions. Motivated by this responsibility, BASF was the first company in the market to switch completely to low-pollutant CO₂ technology. In 2000, the Federation of German Industries (BDI) awarded Styrodur its Environmental Prize for this achievement.



The carbon footprint of Styrodur®

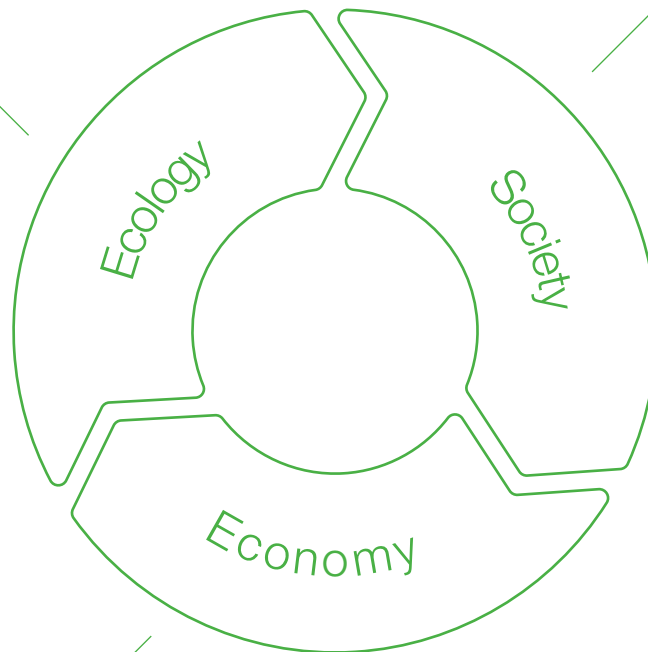
To produce one square metre of Styrodur®, between 1 and 15 kg of CO₂ are emitted, depending on the board thickness and density. In various applications, Styrodur prevents the emission of 6–7 tonnes of CO₂ per square metre of insulated surface over a period of 50 years. Overall, this represents a positive ecological balance.



SUSTAINABILITY

**BASF Verbund site,
Ludwigshafen, Germany**

- Resource-efficient production
- CO₂ savings
- Climate protection



**Compliance with
international occupational
and social standards**

<https://www.basf.com/en/company/sustainability/employees-and-society/employees/employment-conditions.html>

**Sustainability
in the supply chain**
<https://www.basf.com/en/company/about-us/suppliers-and-partners/sustainability-in-procurement.html>

**Same lambda value across the entire
thickness range of Styrodur 3000 CS**

https://www2.basf.de/basf2/img/produkte/kunststoffe/styrodur/downloads2/en/styrodur_3000_cs_flyer_en.pdf

Important note

The information submitted in this publication is based on our current knowledge and experience and refers only to our product and its properties at the time of going to print. It does not imply any warranty or any legally binding assurance about the condition of our product. Attention must be paid to the requirements of specific applications, especially the structural-physical and technological aspects of construction and building regulations.

styrodur@basf.com
www.styrodur.com