Table 1 Properties of expanded foams made from Styropor for building applications

Properties[1]	Test standard	Unit	Test results		
Quality grades	Quality terms		PS 15 SE	PS 20 SE	PS 30 SE
Application types	DIN 18164, Part 1		W	WD	WS+WD
Minimum bulk density	DIN-EN 1602	kg/m³	15	20	30
Building material class (product type Styropor F)	DIN 4102		B1, flameproof	B1, flameproof	B1, flameproof
Thermal conductivity Measured value at +10 °C	DIN 52612	mW/(m·K)	36–38	33–35	31–34
Calculated value	DIN 4108	mW/(m·K)	40	40	35
Compressive stress at 10% compressive strain	DIN-EN 826	kPa	65-100	110-14-	200-250
Sustained compressive load-bearing capacity at 1.5–2% compressive strain after 50 years	DIN-EN 1606	kPa	20–30	35–50	70–90
Flexural strength (without foam skin)	DIN-EN 12089	kPa	150–230	250–310	430–490
Shear strength	DIN-EN 12090	kPa	80–130	120–170	210–260
Tensile strength	DIN-EN 1608	kPa	160–260	230–330	380–480
Modulus of elasticity (compressive tests)	DIN-EN 826	MPa	1.0–4.0	3.5–6.5	7.5–11.0
Heat deflection temperature, short-term	DIN 53424[2]	°C	100	100	100
Heat deflection temperature, long-term at 20 kPa	DIN 18164, Part 1	°C	75	80	80
Coefficient of linear thermal expansion	DIN 53752[2]	1/K	5-7·10-5	5-7·10-5	5-7·10-5
Specific heat	DIN 53765	J/(kg·K)	1,210	1,210	1,210
Water absorption when kept under water, after 7 days	DIN-EN 12087	vol.%	0.5–1.5	0.5–1.5	0.5-1.5
Water absorption when kept under water, after 28 days	DIN-EN 12087	vol.%	1.0–3.0	1.0–3.0	1.0–3.0
Water vapor diffusion resistance coefficient					
Calculated value by DIN 4108, Part 4 (most favorable and least favorable value)	DIN-EN 12086	1	20/50	30/70	40/100

[1] Values are laid down in DIN 55471, Part 2
[2] Depending on test standard
** 1 N/mm² = 1,000 kPa*

Table 2 Resistance of Styropor foam to chemical agents

Chemical agent	Styropor P + F
Salt solution (seawater)	+
Soap and wetting agent solutions	+
Bleaching agents, such as hypochlorite, chlorine water, hydrogen peroxide solutions	+
Dilute acids	+
36% hydrochloric acid, nitric acid up to 50%	+
Anhydrous acids (e.g. fuming sulfuric acid, 100% formic acid)	–
Sodium hydroxide, potassium hydroxide and ammonia solutions	+
Organic solvents such as acetone, acetate esters, benzene, xylene, paint thinner, trichloroethylene	–
Saturated aliphatic hydrocarbons, surgical spirit, white spirit	–
Paraffin oil, Vaseline	+ –
Diesel oil	–
Gasoline (regular and premium grades)	–
Alcohols (e.g. methanol, ethanol)	+ –
Silicone oil	+

+ Resistant: the foam remains unaffected even after long exposure.
+ – Limited resistance: the foam may shrink or suffer surface damage on prolonged exposure.
– Not resistant: the foam shrinks or is dissolved.