Physical material properties
of the applied materials

FRINORM®

Type ES and EL thermal insulation boards

Fibre cement board	Symbol	Test method	Unit	Value
Gross density	ρ_a		kg/m³	1600
Thermal conductivity	λ_D		W/mK	0.360
Fire behaviour				A2-s1, d0
Maximum water absorption			%	25
Moisture content in natural state			%	10 ±15
Expansion at extreme temperatures and humidity (–5°C to +100°C, 20% to 90%)			mm/m	1.5
Thermal expansion coefficient			$°C^{-1}$	0.00001
Frost resistance				Optimum
Oil and acid resistance				Good
Constancy of impermeability				Absolute
Wear resistance				Good
Compressive strength			N/mm²	40
Breaking strength, vertical to fibre			N/mm²	32
Breaking strength, parallel to fibre			N/mm²	22
Elasticity			N/mm²	2

Expanded rigid polystyrene foam (EPS)	Symbol	Test method	Unit	Value
Gross density	ρ_a	SN EN 1602	kg/m³	15
Thermal conductivity	λ_D	SIA V 279	W/mK	0.038
Fire behaviour		VKF	BKZ	5.1
Specific thermal capacity	C		Wh/kgK	0.39
Water vapour diffusion resistance factor	μ	SN EN 12086		40
Compression stress at 10% compression	σ_{10}	SN EN 826	kPa	≥60
Creep behaviour under pressure (50 years, compression <2%)	σ_C	SN EN 1606	kPa	≥12
Top application limit temperature, non-weight-bearing			°C	75
Cell content				Air

Expanded rigid polystyrene foam with graphite additive (EPS lambda)	Symbol	Test method	Unit	Value
Gross density	ρ_a		kg/m³	20
Thermal conductivity	λ_D		W/mK	0.030
Fire behaviour		DIN 4102		B1
Compression stress at 10% compression			kPa	≥100
Compression stress at 2% compression			kPa	≥20–35
Heat distortion temperature, short-term			°C	95
Heat distortion temperature, long-term			°C	80–85
Water absorption after 28 days' underwater storage			Volume per cent	3–4
Water vapour diffusion resistance factor			μ	30–55

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