

EPS Bulk Insulation Boards — Engineering Specification & Technical Data Sheet

Technopol SA's EPS Bulk Insulation Boards are fire-retardant (FRCel) expanded-polystyrene flat sheets and moulded boards, supplied across four application families — plain bulk sheets, faced ceiling boards, cavity-wall insulation and underfloor / under-screed boards — plus Polyclad backing boards for plastered ETICS / EIFS. Grade, thickness and facing are selected to the required thermal resistance and load; grades and thicknesses support **SANS 10400-XA** deemed-to-satisfy R-value compliance.

Product & dimensional data

Product	EPS Bulk Insulation Boards — fire-retardant (FRCel) expanded-polystyrene flat sheets & moulded / faced boards; manufactured in Springs, Gauteng
Form	Plain custom-cut sheets and moulded / faced boards, cut to size (no fixed pre-cut stock sizes)
Application families	Plain bulk sheets · ceiling (PolyCool / SuperCool) · cavity wall (Cavity / PolyKey / LiteCel) · underfloor / under-screed · ETICS backing (Polyclad)
Grade range	12SD – 30DV (plus 16DV; cornice grade 27 kg/m ³) — all grades fire-retarded
Thermal conductivity λ (max @10 °C)	0.033 – 0.045 W/m·K, grade-dependent (see grade table below)
Cut-sheet envelope	Up to 6000 × 1240 mm; 10 – 960 mm thick (sources conflict 600–1030 mm — confirm maximum with Technopol)
Standard stock menu	Widths 1200 / 1220 mm; lengths 2000 – 7500 mm; thickness menu 5 – 600 mm; closed-cell, non-hygroscopic, 100% recyclable
Reaction to fire (FR grade)	Class B-s1,d0 to SANS 53501-1 — tested EPS FRCel 20DV 60 mm (Ignis report IT 23-08-00009); a reaction-to-fire class, not a fire-resistance rating
Energy compliance	SANS 10400-XA / -K deemed-to-satisfy R-value compliance (grade & thickness dependent)

EPS grades — physical properties

Property	30DV (EHD)	24DV (HD)	20DV (SD)	16DV	15SD	12SD
Nominal density (kg/m ³)	30	24	20	16	15	12
Minimum density (kg/m ³)	27.0	21.6	18.0	14.4	13.5	10.8
Thermal conductivity λ , max @10 °C (W/m·K)	0.033	0.034	0.035	0.038	0.040	0.045
Compressive stress @10% strain (kPa, min)	200	160	110	80	65	60
Cross-breaking (flexural) strength (kPa, min)	250	205	150	140	100	80
Safe working load @1% strain (kPa)	100	70	45	21	17	15
Water-vapour transmission @38 °C / 88% RH (ng·m/N·s, max)	4.2	4.2	5.0	6.9	8.0	—
Water-vapour resistivity (MN·s/g·m, min)	238	238	200	145	125	—
Dimensional stability, 7 d @80 °C: ≤ 1.0% (all grades)						
Service temperature: 80 °C long-term / 100 °C short-term (all grades)						

Technopol laboratory physical-properties sheet. Highlighted row = safe working load at 1% strain, the design limit for sustained (floor / screed) loads — do not design to the 10%-strain value. Note: the website "EPS 15" (λ 0.038, ≥ 80 kPa) matches the 16DV column; confirm grade with Technopol.

Application families & products

Application family	Products / elements	Key dimensions	Added R (m ² K/W)
Plain bulk sheets	Custom-cut FR EPS sheets & moulded boards	Up to 6000 × 1240 mm; 10–960 mm; 12SD–30DV	100 mm → 2.86
Ceiling insulation	PolyCool (vinyl-foil) · SuperCool (uPVC)	15 kg/m ³ core; 35–100 mm; W 600 / 1200 mm	50 mm → 1.68; 80 mm → 2.50
Cavity-wall insulation	Cavity board · PolyKey T&G · LiteCel Cav. & Drainage	PolyKey 340×1200×60/40; LiteCel 425×1240×60	PolyKey 60 mm → +1.5
Underfloor / under-screed	HD EPS under slab + perimeter board	50 mm under slab + 30 mm perimeter; 20/24DV, 30DV	per thickness
ETICS / EIFS backing	Polyclad plastered backing board	1200 × 600 × 60 mm HD tile; SD / HD / EHD	60 mm → +1.7

Design, installation, model specification & QA

Grade selection & structural design

- Balance λ , compressive strength and cost — higher density gives lower λ and higher load capacity
- Design sustained floor / screed loads to the **safe working load @1% strain** (15–100 kPa), not the 10% value, to control creep
- Floor grades: 20SD / 20DV / 24DV (floor & roof), **30DV** for high-traffic floors; never low-density EPS in floors; **vapour barrier both sides**
- Boards are non-structural thermal infill: $R = \text{thickness} / \lambda$; use Technopol's online R-Value Calculator for selection

Ceiling boards — spans & fixing

- Max over-purlin span: **PolyCool 1300 mm, SuperCool 1400 mm**
- Joints: PolyCool via PVC / aluminium **H-extrusions**; SuperCool via **tongue-and-groove** edges (specify at order)
- Along-purlin / across-beam installs: order **reinforced boards** to prevent sagging; consult Technopol technical staff

Fire & chemical

- FR grade: **Class B-s1,d0** reaction-to-fire (SANS 53501-1, FRCel 20DV 60 mm) — the best class an EPS achieves; **not** a fire-resistance (minutes) rating
- EPS is **combustible** — keep flame / hot-works away in storage and installation; cover in service; respect the 80 / 100 °C limits
- Attacked by petrol, solvents and strong oxidising acids; resistant to salt water, alkalis, cement, lime and air-blown bitumen — use compatible adhesives

Cavity-wall installation

- Wall ties at **340 mm vertical / 600 mm horizontal** (\approx every 4th course, 5 ties/m²); PolyKey ties pressed into the upward tongue
- Keep a **25 mm air gap** (Cavity board); PolyKey has no-mortar drain channels; weep holes at 600 mm; DPC as a cavity tray
- LiteCel: knobs to the outer leaf; **SANS 28** single-wire ties (3.15 mm; stainless for coastal) every 5th course \times 600 mm (\approx 3.9 ties/m²)
- Cavity compliance: **SANS 10400-K / SANS 10249 / SANS 28**

Underfloor / under-screed

- Published detail: **50 mm HD EPS under the slab** (with DPM) + **30 mm perimeter board**; screed over
- Cold-store / >20 MPa slab with EPS >75 mm suits 20/24DV; heavy / vehicle floors to be designed by a certified civil engineer

Handling & QA

- Very low self-weight; placed by hand; cut with hot-wire, hand saw or knife (softens \approx 150 °C)
- EPS is **not UV-stabilised** — store under cover and cover promptly in the works
- Verify delivered **grade, density and facing** against the specification on each delivery

Model specification clause (edit to project)

"Thermal insulation shall be Technopol fire-retardant expanded-polystyrene (FR EPS / FRCel) board, grade **EPS** ___ (nominal density ___ **kg/m³**), thermal conductivity not exceeding ___ **W/m·K**, supplied as [*plain cut sheet / faced ceiling board / cavity board / under-screed board*] ___ **mm** thick to achieve an added thermal resistance of **R** ___ **m²K/W** ($R = \text{thickness} / \lambda$) as required by SANS 10400-XA. Ceiling boards shall span not more than ___ **mm** between purlins with joints sealed by [*H-extrusion / tongue-and-groove*]. Cavity boards shall be built in with SANS 28 wall ties at ___ **mm** centres, retaining a clear air gap and weep holes. Floor insulation shall be grade not less than **20DV** (30DV for high-traffic floors) with a vapour barrier to both faces. Where the insulation carries sustained load, the working stress shall not exceed the safe working load at 1% strain of the selected grade. The FR EPS shall carry a **SANS 53501-1 Class B-s1,d0** reaction-to-fire classification, be stored under cover and kept clear of open flame, hydrocarbons and prolonged UV, and be covered in the permanent works."

Compliance note. The **Class B-s1,d0** classification is a **reaction-to-fire** class (SANS 53501-1; Ignis report IT 23-08-00009, tested EPS FRCel 20DV 60 mm) — it is **not** a fire-resistance (FRx minutes) rating, and plain EPS bulk board carries no fire-resistance rating; fire resistance is achieved only in specific tested assemblies. Grades and thicknesses support SANS 10400-XA / -K deemed-to-satisfy energy compliance. EPS bulk insulation board is **not an Agrément-certified line** — Technopol's Agrément South Africa certificate 2020/609 covers the LiteCore Building System only and is not claimed here. Some product values (LiteCel density and fire class, faced-board fire classification, maximum sheet thickness) remain to be confirmed — verify with Technopol before publishing.

Grade, thickness & facing selection and board schedules on request — info@technopol.co.za · (011) 363-2780 · technopol.co.za