

PANELS · ENGINEERING SPECIFICATION

PolyCool & SuperCool

This specification covers Technopol SA PolyCool and SuperCool composite insulated-ceiling boards — a fire-retarded EPS core with a washable facing — used as combined roof insulation and finished ceiling in poultry and agricultural buildings.

Verified technical data

Property	Value	Standard
Product build-up	PolyCool: white vinyl foil laminated to one face of a fire-retarded EPS core. SuperCool: 1 mm white uPVC sheet laminated to one face of a fire-retarded EPS core, tongue-and-groove edges. Faced one side (both sides available).	—
Thermal resistance R-value (in application, by board thickness)	PolyCool (18 kg/m ³ core): 1.27 @35 / 1.69 @50 / 2.40 @75 / 3.00 @100 mm. SuperCool (15 kg/m ³ core): 1.60 @50 / 1.87 @60 / 2.30 @75 / 2.95 @100 mm m ² ·K/W	—
EPS core density (grade)	PolyCool standard 18; SuperCool standard 15; 20 or 30 optional for special insulation/mechanical requirements kg/m ³	—
Reaction to fire — composite board (SANS 428)	PolyCool: B / B1 / 2. SuperCool: B / B1 / 2 / H	SANS 428 (via SANS 10177-10 / -11)
Reaction to fire — FR EPS core (Euroclass)	Class B — B-s1,d0	SANS 53501-1 (EN 13501-1)
Areal mass (uncut board)	PolyCool (18 core): 0.35 + thickness_mm × 0.018. SuperCool (15 core): 1.0 + thickness_mm × 0.016 kg/m ²	—
Board dimensions (thickness / width / max length)	PolyCool: 35/50/75/100 thick, width 600 or 1200 (±5), length up to 6000. SuperCool: 50/60/75/100 thick, width 1200, length up to 7500 mm	—
Maximum support spacing (over-purlin)	PolyCool by thickness: 1200 @35 / 1350 @50 / 1500 @75 / 1800 @100 mm board. SuperCool: 1400 (max recommended) mm	—

Scope

- 1.0** This specification covers the supply and installation of PolyCool (vinyl-faced) and SuperCool (uPVC-faced) composite fire-retarded EPS insulated-ceiling boards for poultry and agricultural buildings.
- 2.0** The boards provide roof/ceiling thermal insulation and a finished, washable ceiling surface in a single element, fixed below-truss, over-purlin or across-beam.
- 3.0** This specification excludes any fire-resistance (REI/FRR) rated function, structural load-bearing design, and applications beyond agricultural use for which the products are not classified.
- 4.0** Roof sheeting, primary roof structure, purlins and the building fire-safety and ventilation design are outside the scope of the board supply and are the responsibility of others.

Materials

- 5.0** The core shall be fire-retarded expanded polystyrene (EPS) at a standard density of 18 kg/m³ for PolyCool and 15 kg/m³ for SuperCool; 20 or 30 kg/m³ cores may be specified where special insulation or mechanical requirements apply.
- 6.0** PolyCool shall be faced on one side with a white vinyl foil laminated to the EPS core with PU adhesive.
- 7.0** SuperCool shall be faced on one (or both) side(s) with a 1 mm white uPVC sheet laminated to an FR Cel 15DV fire-retardant EPS core with PU adhesive (approximately 200 g/m²), with tongue-and-groove edges.
- 8.0** SuperCool side-to-side joints shall be sealed with a polystyrene tongue inserted between adjacent boards.
- 9.0** The lamination adhesive is identified only as PU adhesive; no adhesive product name, bond strength or service-temperature limit is published and shall be obtained from the manufacturer where required.

Performance

10.0 Published in-application thermal resistance (R-value) for PolyCool at 18 kg/m³ core is 1.27 / 1.69 / 2.40 / 3.00 m²K/W at 35 / 50 / 75 / 100 mm respectively.

11.0 Published in-application thermal resistance (R-value) for SuperCool at 15 kg/m³ core is 1.60 / 1.87 / 2.30 / 2.95 m²K/W at 50 / 60 / 75 / 100 mm respectively.

12.0 Published R-values apply only to the standard core densities stated; no R-values are established for the optional 20 or 30 kg/m³ cores.

13.0 Thermal conductivity (lambda) of the core is not published; the R-values above are stated in-application figures, and legacy board-only U-values are labelled 15-density and marked probable.

14.0 Board dimensions are: PolyCool 35/50/75/100 mm thick, 600 or 1200 mm wide, up to 6000 mm long; SuperCool 50/60/75/100 mm thick, 1200 mm wide, up to 7500 mm long.

15.0 Areal mass (uncut board) is PolyCool 0.35 + (thickness_mm x 0.018) kg/m² and SuperCool 1.0 + (thickness_mm x 0.016) kg/m² (the SuperCool areal-mass formula is a legacy/probable brochure figure).

16.0 No compressive-strength value and no allowable structural load/span rating is published for either board; the only span guidance is the PolyCool over-purlin maximum support spacing (1200/1350/1500/1800 mm at 35/50/75/100 mm) and the SuperCool 1400 mm maximum recommended support span.

Fire

17.0 Fire performance is characterised as reaction-to-fire only on specific tested build-ups; none of the classifications is a fire-resistance (REI / rated-minutes) rating.

18.0 PolyCool composite board classifies SANS 428 B / B1 / 2 (via SANS 10177-10, FIRELAB report FTC 17-104) on a vinyl-faced 18 kg/m³ FR polystyrene build-up.

19.0 SuperCool/Supacool composite board classifies SANS 428 B / B1 / 2 / H (via SANS 10177-11 horizontal, FIRELAB report FTC 16-208 Rev.1) on the 1 mm uPVC + PU adhesive + FR Cel 15DV build-up.

20.0 The bare fire-retarded EPS core carries a Euroclass B-s1,d0 (Class B) reaction-to-fire classification to SANS 53501-1, measured on a 60 mm sheet at approximately 18.4 kg/m³; this applies to the core material only, not to the faced composite board.

21.0 The EPS core is combustible; where fire resistance is required it shall be separately determined per SANS 10177-2, as no REI rating is established for these boards.

22.0 Under sustained fire the SuperCool uPVC facing softens, ignites and can shed flaming/molten droplets; the board is classified for agricultural application only and its fire behaviour may affect sprinkler operation, so adequate roof ventilation shall form part of the building fire-safety design per SANS 10400-T.

23.0 SANS 10177-5 'B combustible' was declared, not tested.

Execution / installation

24.0 Boards shall be fixed directly to the roof structure below-truss, over-purlin or across-beam, carried on mini top-hats (pre-galvanized or coated pre-galvanized steel) or H-strips (aluminium or PVC) with hold-down cups at the joints.

25.0 In the over-purlin configuration the board shall be supported on a mini top-hat or H-strip, the roof sheeting laid above the boards, and the sheeting fixed through the boards into the purlins.

26.0 SuperCool boards installed across purlins shall use the tongue-and-groove arrangement (specified at order) to seal side-to-side joints.

27.0 Where boards are installed across beams in the same direction as purlins or top-hat sections, reinforced boards (e.g. mesh) shall be requested to prevent sagging.

28.0 Boards may be cut or trimmed on site with a sharp knife or hacksaw, and surface indentations/imperfections repaired with a plaster key / crack filler.

29.0 Boards shall be stored flat and protected from weather and direct sunlight; EPS is solvent-sensitive.

Standards & compliance

30.0 Composite-board reaction-to-fire is classified to SANS 428 via SANS 10177-10 (PolyCool) and SANS 10177-11 horizontal (SuperCool/Supacool).

31.0 FR EPS core reaction-to-fire is classified to SANS 53501-1 (EN 13501-1), determined via SANS 53823 (SBI) and SANS 11925-2 (ignitability).

32.0 Fire resistance, where required, shall be determined per SANS 10177-2; no REI rating is established for these boards.

33.0 SANS 10400-T (fire) and SANS 10400-XA (energy usage) are the applicable South African building-regulation deemed-to-satisfy parts referenced in the fire-safety-design note.

34.0 The manufacturer's quality-management certification is ISO 9001:2015 (current); ISO 14001 and ISO 45001 lapsed in March 2026.

35.0 No product-specific Agreement South Africa certificate exists for PolyCool or SuperCool; Agreement SA certificate 2020/609 covers the LiteCore Building System only and shall not be presented as covering these ceiling boards.

Specifier's notes — not established in Technopol sources.

- Thermal conductivity (λ) of the FR EPS core is not established in Technopol sources; only in-application R-values and legacy board-only U-values are published (a back-calculated λ approximately 0.037 W/mK is derived, not stated). Obtain externally if a λ value is required.
- Compressive strength / compressive stress at 10% strain is not established for either board (no kPa/MPa value, no strain basis); obtain externally where required.
- No structural load/span capacity table (allowable UDL vs span, deflection limits or load ratings) is established for either board; only the PolyCool over-purlin max-purlin-spacing table and the SuperCool 1400 mm max support span exist. Structural adequacy must be confirmed externally.

- No product-specific Agreement certificate is established; Agreement SA 2020/609 covers the LiteCore Building System only, and the datasheet Agreement logo is a company mark with no certificate number or scope for these products.
- Dimensional tolerances are not fully established: only PolyCool width tolerance (+/-5 mm) is published; thickness and length tolerances are not stated for either product and must be confirmed with the manufacturer.
- The composite-board fire classifications (FTC 17-104 PolyCool 2017; FTC 16-208 Supacool 2016) are stated valid for 5 years and have lapsed (approximately 2021/2022) unless revalidated by FIRELAB; no current revalidation certificate was found and current validity must be confirmed before reliance.
- The environmental basis of the R/U-values (surface film resistances, facing emissivity, orientation, mean temperature) is not established and is not documented.
- The lamination PU adhesive has no established product name, bond strength or service-temperature limit (only ~200 g/m² spread on SuperCool); obtain externally where the bond is critical.
- Water-vapour permeability, acoustic performance and durability/service-life data are not established for either board; obtain externally where required.
- No R-values are established for the optional 20 or 30 kg/m³ higher-density cores — only for the standard PolyCool 18 / SuperCool 15 densities.
- Unresolved contradiction — maximum board length: legacy brochures quote PolyCool up to 7500 mm and SuperCool 6000 mm, whereas the 2023 datasheets state PolyCool 6000 mm and SuperCool 7500 mm; this specification uses the 2023 datasheet figures, which should be confirmed at order.
- Unresolved contradiction — legacy board-only U-values in PolyCool3.pdf are labelled '15 Density EPS' although PolyCool's standard core is 18 kg/m³; these are historic/generic, marked probable, and not current PolyCool figures.
- Unresolved contradiction — SuperCool thickness set: the 2023 datasheet lists 50/60/75/100 mm while the legacy brochure references 50/65/80 mm; this specification uses the 2023 datasheet set, and legacy SuperCool areal-mass and R-value figures should be treated as legacy/probable.