PUR Sandwich Panels

OMEGA STEEL CO.
Istanbul · Dilovası plant

PUR sandwich panels have the classic polyurethane foam core — light, rigid, closed-cell, λ 0.024 W/mK — that made the sandwich panel the standard building envelope from the 1980s on. It insulates almost as well as PIR at a lower price, and is the choice for sheds, camps, agricultural and unheated buildings and for markets where no fire class is specified. We make PUR roof and wall panels in 40–120 mm at Dilovası with PPGI skins in the stock colours.

λ 0.024 W/mK | 40 kg/m³ closed cell | 40–120 mm | Roof · wall | Economy core

PUR is the panel that built the first generation of warehouses and camps, and in much of our export market it is still what "sandwich panel" means. Where the specification is silent on fire class and the budget is tight, it is the honest choice.

GRADES, STANDARDS AND TOLERANCES

Grade / standard	Yield (MPa)	Note
PUR core, 38–42 kg/m³, pentane-blown	λ 0.024–0.026 W/mK	B-s2,d0 / B-s3,d0 to EN 13501-1; EN 13165
Compressive strength	≥ 0.10 N/mm²	at 10 % deformation
Service temperature	−30 to +90 °C	
Water absorption	< 3 % vol.	closed cell
Skins DX51D + Z100–Z140 + PPGI	≈ 140	EN 10346 / EN 10169

Declared values per EN 14509 CE marking. For B-s1,d0 or insurer requirements specify PIR.

PUR PANEL THICKNESS AND U-VALUE

Thickness	U-value (W/m²K)	Weight (kg/m²)	Purlin / girt spacing (0.75 kN/m²)	Typical use
40 mm	0.56	9.8	2.8 m	sheds, camps, canopies
50 mm	0.46	10.2	3.3 m	warehouses, workshops
60 mm	0.38	10.6	3.7 m	light heating
80 mm	0.29	11.4	4.3 m	heated halls
100 mm	0.23	12.2	4.9 m	offices, chillers
120 mm	0.20	13.0	5.4 m	cold stores (PIR preferred)

PUR runs about 10 % behind PIR in U-value at equal thickness; spans are the same.

WHEN PUR IS ENOUGH — AND WHEN TO MOVE TO PIR OR ROCKWOOL

Building / requirement	PUR	PIR	Rockwool
Shed, canopy, camp unit, no fire spec	yes — cheapest	yes	over-specified
Warehouse < 2 000 m², no insurer requirement	yes	preferred	—
Warehouse with insurer / FM-style requirement	no	yes (B-s1,d0)	yes
Building requiring non-combustible envelope (A2)	no	no	yes
Fire compartment wall EI 30–120	no	no	yes
Cold store / freezer	possible	yes — better λ	no (moisture)
Food / pharma interiors	possible	yes	yes (hygienic skins)
Acoustic requirement (Rw > 30 dB)	no	no	yes

Mixed projects often use PUR on the roof and PIR or rockwool on the walls that face neighbours.

SKINS, COATINGS AND COLOURS

Skin	Thickness	Zinc / paint	Where
PPGI PE 25 µm	0.40 / 0.50 / 0.60 mm	Z100–Z140, RAL 9002 / 9010 / 3009 / 7016 …	outer and inner face standard
PPGI SMP / PVDF	0.50 / 0.60 mm	Z140–Z275	coastal, Gulf, colour warranty
Galvanized	0.40 / 0.50 mm	Z140–Z275, unpainted	inner face on a budget
Food-grade PE	0.50 mm	Z140, RAL 9010	food, cold-store interiors
Aluzinc / aluminium	0.50 / 0.60 mm	—	to order

Outer skin profiled (micro-rib, lined or 5-rib roof); inner skin micro-ribbed or flat.

STANDARDS

EN 14509 — self-supporting double-skin metal-faced insulating panels · EN 13501-1 fire classification; EN 13165 (PIR/PUR), EN 13162 (mineral wool), EN 13163 (EPS) cores · EN 10169 / EN 10346 skin steel · EN 10204 3.1