

# Technical Information

## PU hard foam plate sk (self-adhesive)



PU hard foam plates sk are self-adhesive or non-self-adhesive on one or two sides and are polyurethane rigid foam boards with excellent thermal insulation properties.

Our PU hard foam plate sk guarantees quick bonding across the entire surface for composite systems with thermal insulation. The board is made of polyurethane rigid foam and is self-adhesive on both sides.

It also features high compressive strength and low water absorption.

The adhesive is a modified acrylic adhesive which has excellent adhesion strength on difficult surfaces.

The dimensions make boards manageable and easy to work with.

### Technical data:

Polyurethane rigid foam board	CFC- and HCFC-free	
Density	approx. 40 kg / m <sup>3</sup>	DIN EN 1602
Fire behaviour	Building Material Class B2	DIN 4102 – 1
	Fire classification E	DIN EN 13501 – 1
Compressive strength	320 kPa	DIN EN 826
E-module compressive strength	8500 kPa	DIN EN 826
Traverse tensile strength	400 kPa	DIN EN 1607
E-module traverse tensile strength	8000 kPa	DIN EN 1607
Traverse breaking strength	350 kPa	DIN EN 12089
Shear strength	140 kPa	DIN EN 12090
Closed cell content	> 95 %	DIN ISO 4590
Thermal conductivity	measured value at 10 °C	$\lambda_{10} \leq 0.022 \text{ W / m}\cdot\text{K}$ DIN EN 12667
	rated value	$\lambda = 0.030 \text{ W / m}\cdot\text{K}$ DIN 4108
Water absorption	max. 3 %	DIN EN 12087
Adhesive layer	acrylate dispersion adhesive, solvent-free	
Masking paper	release paper, yellow	
Adhesive strength	23 N / 25 mm	ac. to AFERA 5001
Adhesive weight	100 g / m <sup>2</sup>	
Resistance to aging	good	
Compound		
Temperature range	- 40 °C to + 95 °C, to 120°C for short periods	
Working temperature	+ 10 °C to + 35 °C	
Ideal working temperature	+ 15 °C to + 25 °C	
Standard formats:	thicknesses	20, 30, 40 mm
	length x width	2400 x 1200 mm

For the density is a tolerance of  $\pm 10\%$ .

Particular valuation items of strength can undercut the nominal value up to 10 %.

All strength values are based on the parallel test direction.

The values of thermal conductivity are defined in accordance to EN 12667 within 6 weeks at 10°C average temperature.

We can manufacture PU hard foam plates tailored to your individual requirements – self-adhesive on both sides (2sk), self-adhesive on one side (1sk) or non-self-adhesive (nsk).

Thermal transfer coefficient U of the PU rigid foam board as a measure for thermal conductivity as per DIN 4108:

with:

$$1/U = R_T = s / \lambda + R_{si} + R_{se}$$

s = board thickness

$\lambda$  = thermal conductivity – rated value as per DIN 4108

$R_{si} / R_{se}$  = thermal transfer resistance

$R_T = 1/U$  = thermal transition resistance

**U = thermal transition coefficient**

Thermal conductivity of PU rigid foam	rated value as per DIN 4108	$\lambda = 0.030 \text{ W}/(\text{m}\cdot\text{K})$
Thermal conductivity of a sandwich element as specified below	rated value as per DIN 4108	$\lambda = 0.025 \text{ W}/(\text{m}\cdot\text{K})$
Thermal transfer resistance, inside	as per DIN 4108	$R_{si} = 0.13 \text{ (m}^2\cdot\text{K)}/\text{W}$
Thermal transfer resistance, outside	as per DIN 4108	$R_{se} = 0.04 \text{ (m}^2\cdot\text{K)}/\text{W}$

Sandwich elements made of our PU sk rigid foam board can be classified in **thermal conductivity class 025 as per DIN EN 13 165** if top layers impervious to vapour, such as aluminium having a minimum thickness of 50 $\mu\text{m}$ , is applied to the upper and lower side.

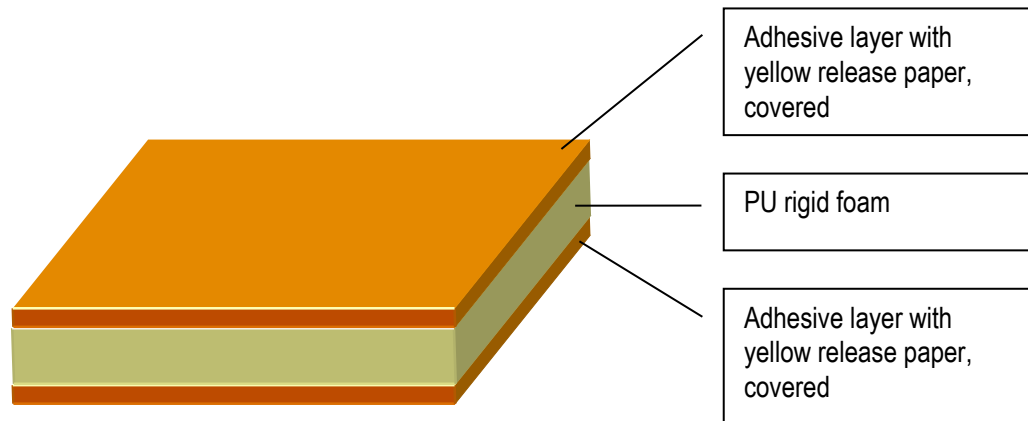
To attain thermal conductivity class 025, we recommend our **Alu Fixband** adhesive tape for bonding edges all the way round. Classification of this type of manufactured sandwich element into thermal conductivity class 025 as per DIN EN 13 165 must be determined and verified by testing thermal conductivity.

Board thickness / thickness of a sandwich element s [mm]	PU rigid foam plates $\lambda = 0.030 \text{ W}/(\text{m}\cdot\text{K})$		Sandwich element as above $\lambda = 0.025 \text{ W}/(\text{m}\cdot\text{K})$	
	s / $\lambda$ [W/(m·K)]	U [W/(m <sup>2</sup> ·K)]	s / $\lambda$ [W/(m·K)]	U [W/(m <sup>2</sup> ·K)]
10	0.333	1.988	0.400	1.754
15	0.500	1.493	0.600	1.299
20	0.666	1.196	0.800	1.031
24	0.800	1.031	0.960	0.885
25	0.833	0.997	1.000	0.855
30	1.000	0.855	1.200	0.730
35	1.166	0.749	1.400	0.637
40	1.333	0.665	1.600	0.565
45	1.500	0.599	1.800	0.508
50	1.666	0.545	2.000	0.461
55	1.833	0.499	2.200	0.422
60	2.000	0.461	2.400	0.389
65	2.166	0.428	2.600	0.361
70	2.333	0.400	2.800	0.337
75	2.500	0.375	3.000	0.315
80	2.666	0.353	3.200	0.297
85	2.833	0.333	3.400	0.280
90	3.000	0.315	3.600	0.265
95	3.166	0.300	3.800	0.252
100	3.333	0.285	4.000	0.240

**Tab. 1:**

Thermal resistance s /  $\lambda$  and thermal transfer coefficient U in relation to board thickness

### Structure of a PU rigid foam board (2sk):



### Working with the boards:

Subsurface must be dry and free of grease and dust.

Apply equal pressure. Do not use a roller or anything similar.

Once the adhesive layer has bonded with the subsurface, repositioning is not possible.

### Attention! Important Note:

Above information are based on best present knowledge of current technology, but do not guarantee faultless processing of our products. The information is based on practical results of our tests, but is not binding and does not constitute warranties of characteristics in terms of Federal Supreme Court jurisdiction. Our information does not constitute a legally binding assurance of certain properties or suitability for a specific purpose. Supplementary information by our specialists are merely recommendations, for which no liability is accepted.

Due to the many possible applications of our products, we recommend subjecting the project to a thorough suitability test on original materials before release for further application.

Since our information are non-binding we do not warranty their correctness. For this reason we accept no liability for possible improper processing based on information submitted by our employees.

This technical data sheet replaces all previous versions and is valid until a new version is issued, or until Dec. 31, 2023. Please request the latest version after Jan. 01, 2024.

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