

## AIREX® TK90 and TK92

GM--TDS-064

**Strong and Insulating Rigid Foams for Building & Construction**

**DATA SHEET 06.2024**

**- Replaces 02.2024**

### DESCRIPTION



**AIREX® TK90** and **AIREX® TK92** are rigid, closed-cell PET-based foams that are optimized for strength/stiffness as well as for thermal insulation. Additionally, **AIREX® TK90** features high fire retardancy.

Both grades are rot proof, do not take up any moisture, feature very low vapor permeability and keep their low insulation properties over long time. With densities ranging from 60 kg/m<sup>3</sup> up to 200 kg/m<sup>3</sup> the mechanical and insulating properties can be perfectly adjusted to the applications' requirement. The materials are very easy to thermoform into 3D or double-curved shapes.

**AIREX® TK90** and **TK92** are ideally suited for applications where load-bearing capabilities (both static and in fatigue) need to be combined with good thermal insulation.

### CHARACTERISTICS

- High thermal insulation (starting at 0.026 W/mK) – long-time stable insulation properties due to no water absorption even after decades and under high humidity
- Excellent mechanical properties, static and in fatigue loading
- Very good screw retention at higher densities
- Excellent long term thermal stability up to 100 °C (short term up to 180 °C)
- Fire retardant grade **AIREX® TK90**
- No water/humidity absorption, no rot
- Low vapor permeability
- Dimensionally stable, also under water
- Resistant to chemicals and alkali
- Recyclable and recycled material (up to 100 % recycled PET)
- Highly consistent material properties independent from variance in color
- Biologically inert, non-toxic

### APPLICATIONS

- Balconies, facades, beams, bridges, walkways
- Window profiles, window/brickwork interface
- Door & windowsills
- Panels for thermal and acoustic insulation
- Structural roofs/domes

### PROCESSING\*

- Easy processing with standard wood processing equipment
- Can be easily glued with standard adhesives
- All common sandwich production technologies
- Very easy to thermoform into complex 3D shapes

\*for details please refer to **AIREX®** Processing Guidelines.

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PRODUCT PROPERTIES									
Typical properties for AIREX® TK92 foams		Unit (metric)	Direction	AIREX® TK92.60	AIREX® TK92.80	AIREX® TK92.100	AIREX® TK92.130	AIREX® TK92.150	AIREX® TK92.200
Density	ISO 845	kg/m³	-	72	85	100	135	150	210
Compressive strength	ASTM C365	N/mm²	<b>in width</b>	<b>0.85</b>	<b>1.30</b>	<b>1.55</b>	<b>2.30</b>	<b>2.60</b>	<b>3.80</b>
			in length	0.25	0.40	0.60	1.10	1.20	2.30
			in thickness	0.35	0.50	0.70	1.20	1.40	2.60
Compressive modulus	ASTM C365	N/mm²	<b>in width</b>	<b>55</b>	<b>75</b>	<b>90</b>	<b>110</b>	<b>130</b>	<b>180</b>
			in length	11	15	23	50	55	105
			in thickness	17	23	32	64	70	125
Bending strength	EN 310	N/mm²	-		0.55	1.2			
Fire resistance	EN 13501-1 DIN 4102-1	-	-	E	E	E B2	E B2	E B2	E B2
Thermal conductivity	EN 12667	W/m.K	in thickness, 10 °C	0.026	0.026	0.026	0.031	0.034	0.042
Water vapor resistance μ	DIN EN 12572	-		>1000					
Screw retention force	EN 320	N	15 mm depth	115	150	190	280	320	460
			30 mm depth	250	320	400	600	680	1000
Water absorption	ISO 2896-87	% volume	7 days	approx. 2 %					
Thickness swell in water	ISO 2896-87	% volume	-	< 0.5%					
Thermal expansion	ISO 11359	mm/m.K	In-plane		0.075	0.065	0.065	0.065	0.065
Standard sheet	Width	mm ± 5		990	990	990	990	1220	1220
	Length	mm ± 5		2440	2440	2440	2440	2440	2440
	Thickness <sup>1)</sup>	mm ± 0.5		5 to 150	5 to 150	5 to 150	5 to 150	5 to 150	5 to 150

<sup>1)</sup> Higher thicknesses on request. Thicknesses 2-7mm (TM line) on request.

<sup>2)</sup> Preliminary data

The information contained herein is believed to be correct and to correspond to the latest state of scientific and technical knowledge. However, no warranty is made, either expressed or implied, regarding its accuracy or the results to be obtained from the use of such information. No statement is intended or should be construed as a recommendation to infringe any existing patent.

PRODUCT PROPERTIES							
Typical properties for AIREX® TK90 foams		Unit (metric)	Direction	AIREX® TK90.60	AIREX® TK90.100	AIREX® TK90.150	AIREX® TK90.210
Density	ISO 845	kg/m <sup>3</sup>	-	65	110	145	210
Compressive strength	ASTM C365	N/mm <sup>2</sup>	<b>in width</b>	<b>0.80</b>	<b>1.40</b>	<b>2.20</b>	<b>3.80</b>
			in length	0.20	0.40	0.80	2.10
			in thickness	0.30	0.60	1.00	2.40
Compressive modulus	ASTM C365	N/mm <sup>2</sup>	<b>in width</b>	<b>50</b>	<b>80</b>	<b>105</b>	<b>170</b>
			in length	8	24	32	90
			in thickness	12	32	42	110
Bending strength	EN 310	N/mm <sup>2</sup>	-	0.35	1.1	1.8	3.8
Fire resistance	EN 13501-1 DIN 4102-1	-	-	B s1 d0	C <sup>2</sup> ) s1 d0 B1 <sup>1)</sup>		C <sup>2</sup> ) s2 d0
Thermal conductivity	EN 12667	W/m.K	in thickness, 10 °C	0.026	0.026	0.034	0.042
Water vapor resistance μ	DIN EN 12572	-		>1000			>3000
Screw retention force	EN 320	N	15 mm depth	70	190	290	460
			30 mm depth	140	400	600	1000
Water absorption	ISO 2896-87	% volume	7 days	approx. 2 %			
Thickness swell in water	ISO 2896-87	% volume	-	< 0.5%			
Thermal expansion	ISO 11359	mm/m.K	In-plane	0.08	0.065	0.065	0.065
Standard sheet	Width	mm ± 5		990	990	990	990
	Length	mm ± 5		2440	2440	2440	2440
	Thickness <sup>1)</sup>	mm ± 0.5		5 to 150	5 to 150	5 to 150	5 to 150

<sup>1)</sup> Higher thicknesses on request. Thicknesses 2-7mm (TM line) on request.

<sup>2)</sup> May depend on thickness

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