TECHNICAL DATA SHEET

PROTHERM MIK

Protherm MIK is a mica laminate for electromechanical and thermo-mechanical applications where the following requirements are made:

- resistance to high temperatures, even in open flame up to 1000°C;
- low thermal conductivity;
- excellent electrical insulation;
- high compression strength;
- resistant to most chemical substances, especially oils and greases;
- asbestos free;
- completely environmentally safe and non-toxic;



Protherm MIK is available in four different versions:

- PROTHERM MIK M contains approx. 90% Muscovite mica and approx. 10% binder. Protherm MIK M has the highest compressive strength and is recommended for punching more complex parts. We recommend it for applications with permanent operating temperatures up to 500°C.
- PROTHERM MIK MC is a "non-smoking" type. It is only available in thicknesses of 1.510 mm. In the preheating at temperatures above 250°C the smoke emission is extremely low.
- PROTHERM MIK P contains approx. 90% mica of the Flogopit grade and approx. 10% binder. It has a lower compressive strength than Protherm MIK M, but can be used at temperatures > 500°C.
- PROTHERM MIK PC is a "non-smoking" type. It is only available in thicknesses of 1.510 mm.

Protherm MIK is used as a replacement for asbestos insulating panels or insulation boards in various applications. Due to its high compressive strength at high temperatures, the plates are placed between the plate and the die in hot presses to minimise heat transfer to the press body. For the stemware industry, the thermal properties and abrasion resistance of Protherm MIK make it an ideal material for so-called pushers in hot bottle transport after leaving the mould, where temperatures can exceed 700°C. Because of its dielectric properties and resistance to creepage currents and electric arcs, Protherm MIK is used in high voltage conditions. Due to its high compressive strength and outstanding thermal properties, Protherm MIK finds use in the gas distribution sector for sealing internal network connections as protection against gas leakage even during a fire. Its thermo-and electro-insulating properties and high-frequency wave permeability qualify it as an ideal insulation and construction material in induction and arc furnaces. Applied to induction-heated equipment in the brazing of aluminium and copper discs in cooking pots as a substitute for asbestos-cement sheets.

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uszczelnienia i termoizolacje dla przemysłu

Cogetherm			М	MC	Р	PC	
Density		g/cm ³	2,7		15		
Compressive strength	20 ⁰ C	Мра	400	360	330	310	
	200 ^o C	Мра	250	235	240	225	
Tensile strength		Мра	150	140	110	100	
Bending strength		Мра	23	200	170	150	
Thermal properties							
Temperature resistance	constant	°C	500		700		
	peak	°C	700		1000		
Thermal shock resistance	<6mm gr.	°C	500		400		
	>6mm gr.	°C	400		200		
Weight loss at temp.	500 ^o C	%	1		1		
	700 ^o C	%	-		2		
Thermal conductivity	perpendicular	W/mK	0,3		0,3		
	parallel	W/mK	3		3		
Specific heat		J/kg	866		866		
Longitudinal expansion	perpendicular	10⁻ ⁶ / ⁰ K	100		100		
	parallel	10⁻ ⁶ / ⁰ K	10		10		
Electrical properties							
Resistance to puncture	20 ^o C	kV	2	25		25	
	400 ^o C	kV	1	3	13		
	600 ^o C	kV	1	0	10		
Specific capacitive resistance	20 °C	Ω.cm	>1	>10 ¹⁶		>10 ¹⁶	
	400 ^o C	Ω.cm	>1	¹² >10 ¹²		012	
	600 ^o C	Ω.cm	>1	09	>109		
Relative dielectric permeability	20 ^o C		6,	.5	6,0		
	400 ^o C		7,	,0	6,5		
Resistance to electric arc	ASTM D495	S	>4	20	>420		
	VDE 0303	L3	2.2.	.1.0	2.2.1.0		
Creepage current resistance		V	50	00	525		
Dielectric loss factor at 160 °C		%	<	1	<1		

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Sizes:

sheets: 1200x1000mm

thickness up to 80mm

tubes: length up to 1500mm, external diameter up to 800mm, internal diameter from 5mm. wall thickness from 1mm.

Protherm MIK can be cut out by die cutting up to 2 mm thick. We recommend tools equipped with a press brake. Above 2 mm thickness, the material must be machined on high-speed saws, drills, milling machines or lathes with steel, tungsten or carbide blades.

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