
SynTherm® H (Polyimide film)

SynTherm® H is a polyimide film manufactured with the raw materials of pyromellitic dianhydride and 4.4-diaminodiphenyl ether synthetic resin.

Attributes

SynTherm® H offers a unique combination of properties at the highest level, which are recommended for many applications in numerous branches. SynTherm® H sustains its excellent physical, electrical and mechanical properties within a wide temperature range. For short time it is also applicable for temperatures from -269 °C to +400 °C and it is used in systems of class H. It has low flammability, is self-extinguishing and has no melting point. SynTherm® H offers a high chemical resistance - an organic solvent is unknown up to now. It has also a high resistance to beta and gamma radiation.

Application

SynTherm® H is especially for applications with high operating temperatures for which other films are not applicable.

Standards

- UL listed(E358562), UL 94 V-0, UL RTI >200 °C

Delivery forms

Film thickness in µm:

25, 50, 75, 100, 125, 150, 175, 200

SynTherm® H can be supplied:

- in slit rolls from widths of 6 mm (depending on thickness)
- in rolls approx. width 500 mm up to 1000 mm

Feathering:

- depth approx. 1 - 12 mm, distance approx. 1 - 10 mm
- from widths of 10 to 240 mm and thickness on request

Base

Pyromellitic dianhydride and 4.4-diaminodiphenyl ether synthetic resin

Typical mechanical properties	Unit of measure						
Nominal thickness	µm	25	40	50	75	100	125
Thickness tolerance	µm	±2.5	±4	±5	+7.5/-6	+8/-7	±8
Density	g/cm³	1.42	1.42	1.42	1.42	1.42	1.42
Shrinkage at 150 °C	%	1.0	1.0	1.0	1.0	1.0	1.0
Tensile strength longitudinal	MPa	≥150	≥150	≥150	≥150	≥150	≥150
Tensile strength transversal	MPa	≥130	≥130	≥130	≥130	≥130	≥130
Elongation at break longitudinal	%	≥60	≥60	≥60	≥60	≥60	≥60
Elongation at break transversal	%	≥60	≥60	≥60	≥60	≥60	≥60

Typical mechanical properties	Unit of measure			
Nominal thickness	µm	150	175	200
Thickness tolerance	µm	±8	±8	±8
Density	g/cm³	1.42	1.42	1.42

The information on this data sheet is based on the information provided by our supplier. It does not represent any specification or agreements regarding conditions or properties. The indicated values are standard values. Deviations from those values due to production and application cannot be excluded. The information on this data sheet is addressed to experts who use it at their own discretion and at their own risk. We do not guarantee results, or accept liability for the indicated specifications or for results obtained based on the specifications. Please contact us for more detailed information. Non-toxic and toxic substances are listed on the safety data sheet.

Updated 07/21

SynTherm® is a registered trademark of SynFlex.



Typical mechanical properties	Unit of measure			
Shrinkage at 150 °C	%	1.0	1.0	1.0
Tensile strength longitudinal	MPa	≥135	≥135	≥135
Tensile strength transversal	MPa	≥115	≥115	≥115
Elongation at break longitudinal	%	≥60	≥60	≥60
Elongation at break transversal	%	≥60	≥60	≥60

Typical electrical properties	Unit of measure						
Nominal thickness	µm	25	40	50	75	100	125
Dielectric strength short term AC	kV/mm	≥150	≥150	≥150	≥150	≥150	≥150
Specific surface resistivity	Ω/m	≥1x10 ¹³	≥1x10 ¹³	≥1x10 ¹³	≥1x10 ¹³	≥1x10 ¹³	≥1x10 ¹³
Volume resistivity	Ω.m	≥1x10 ¹⁰	≥1x10 ¹⁰	≥1x10 ¹⁰	≥1x10 ¹⁰	≥1x10 ¹⁰	≥1x10 ¹⁰
Dielectric constant (AC 50 Hz, 25 °C)		3.5±0.4	3.5±0.4	3.5±0.4	3.5±0.4	3.5±0.4	3.5±0.4
Dielectric loss factor (AC 50 Hz, 25 °C)		10 ⁻³	10 ⁻³	10 ⁻³	10 ⁻³	10 ⁻³	10 ⁻³

The information on this data sheet is based on the information provided by our supplier. It does not represent any specification or agreements regarding conditions or properties. The indicated values are standard values. Deviations from those values due to production and application cannot be excluded. The information on this data sheet is addressed to experts who use it at their own discretion and at their own risk. We do not guarantee results, or accept liability for the indicated specifications or for results obtained based on the specifications. Please contact us for more detailed information. Non-toxic and toxic substances are listed on the safety data sheet.

Updated 07/21

SynTherm® is a registered trademark of SynFlex.



Typical electrical properties	Unit of measure			
Nominal thickness	µm	150	175	200
Dielectric strength short term AC	kV/mm	≥120	≥120	≥110
Specific surface resistivity	Ω/m	≥1x10 ¹³	≥1x10 ¹³	≥1x10 ¹³
Volume resistivity	Ω.m	≥1x10 ¹⁰	≥1x10 ¹⁰	≥1x10 ¹⁰
Dielectric constant (AC 50 Hz, 25 °C)		3.5±0.4	3.5±0.4	3.5±0.4
Dielectric loss factor (AC 50 Hz, 25 °C)		10 ⁻³	10 ⁻³	10 ⁻³

The information on this data sheet is based on the information provided by our supplier. It does not represent any specification or agreements regarding conditions or properties. The indicated values are standard values. Deviations from those values due to production and application cannot be excluded. The information on this data sheet is addressed to experts who use it at their own discretion and at their own risk. We do not guarantee results, or accept liability for the indicated specifications or for results obtained based on the specifications. Please contact us for more detailed information. Non-toxic and toxic substances are listed on the safety data sheet.

Updated 07/21

SynTherm® is a registered trademark of SynFlex.

