



Material Data Sheet

SINTIMID

Chemical Designation:	Polyimide
DIN Abbreviation:	PI
Colour, Filler:	black
Stock Availability:	Standard lengths upon request, also cut to size <ul style="list-style-type: none">▪ Rod 6 - 54 mm dia▪ Plate 5 - 54 mm thick▪ Tube upon request▪ Compression moulded discs, rings, bushing upon request▪ Finished parts, machined

SINTIMID is an amorphous high performance thermoplastic with high permanent temperature and creep resistance as well as good chemical resistance for high thermal mechanical demands.

Main characteristics:	<ul style="list-style-type: none">▪ high thermal mechanical strength▪ high creep resistance▪ good chemical resistance even against skydrol▪ very high resistance to gamma radiation▪ low outgasing in vacuum	<ul style="list-style-type: none">▪ not melting▪ abrasion resistant▪ self extinguishing V-0▪ very good electrical insulation▪ good machinability▪ sensitive to hydrolysis in higher thermal range▪ easily bonded
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Preferred Fields: Cryogenics, nuclear and vacuum technology, electrical engineering, electronics, precision engineering, aircraft and aerospace industries, mechanical engineering, food and medical technology.

Applications:	<ul style="list-style-type: none">▪ insulators (thermal/electrical)▪ switch parts▪ catalyst support▪ vacuum seals▪ plug parts▪ coil formers	<ul style="list-style-type: none">▪ clean room equipment▪ chip carrier▪ gripper finger for hot glass▪ ball for control valve▪ housing parts▪ welding equipment
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SINTIMID

The following information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of certain properties or the suitability for a specific application. Existing commercial patents must be observed. A definitive quality guarantee is given in our general conditions of sales. We reserve the right of technical alterations.

Properties	Unit	Test method DIN ASTM	
Mechanical			
Density	g/cm ³	D-792	1.35
Tensile strength at yield	MPa	D-638	
Tensile strength at break	MPa	D-638	116
Elongation at break	%	D-638	9
Modulus of elasticity in tension	MPa	D-790	4000
Modulus of elasticity in flexure	MPa	D-790	4000
Ball indentation hardness	MPa	53 456	
Impact strength (Izod) notched	J/m	D-256	75
Creep rupture strength after 1000 hrs with static load	MPa		
Time yield limit for 1% elongation after 1000 hrs.	MPa		12
Coefficient of friction against hardened and ground steel $p = 0,05 \text{ N/mm}^2, v = 0,6 \text{ m/s}$	-		approx. 0,8
Wear conditions as above	$\mu\text{m/km}$		
Thermal			
Crystalline melting point	°C	53 736	---
Glass transition temperature	°C	53 736	360 - 375
Heat distortion temperature Method A Method B	°C °C	ISO 75 ISO 75	368

Properties	Unit	Test method DIN ASTM	
Thermal			
Max. service temperature short term long term	°C °C		up to 350 300
Coefficient of thermal conductivity	W/(m · K)		0,22
Specific heat	J/(g · K)		1,04
Coefficient of thermal expansion	10 ⁻⁶ /K	D-696	4,9
Electrical			
Dielectric constant at 10 ³ Hz		D-150	3,1
Dielectric loss factor at 10 ³ Hz		D-150	0,003
Specific volume resistance	$\Omega \cdot \text{cm}$	D-257	10 ¹⁷
Surface resistance	Ω	D-257	10 ¹⁰
Dielectric strength at 1 mm	kV/mm	53 481	20
Trecking resistance		53 480	
Miscellaneous			
Moisture absorption: Equilibrium in standard atmosphere (23 °C / 50 % rel. humidity)	%	53 714	2,6
Water absorption at saturation at 23 °C	%	53 495	3,6
Resistance to hot water, washing soda			limited resistant
Flammability		UL 94	V-O
Resistance to weathering			limited resistant

* after storage in a standard 23/50 atmosphere (DIN 50 014) to equilibrium

ENSINGER: Production and stock programme □

Semi-finished product, finished parts, injection moulded parts and profiles in more than 500 materials and modifications.

- Engineering plastics: PA extruded or cast, POM, PC, PET, PBT, PPE, PP, PE
- High temperature plastics: PI, TPI, PEEK, PPS, PES, PPSU, PEI, PSU, PVDF, PCTFE, PTFE
- Stock length: Standard 3 metres
- Pressed/sintered semi-finished product: PI, PEEK, PPS, PTFE/PI and modifications, as well as PCTFE in special sizes ie, large discs, tube and rings with diameters up to about 1500 mm.
- Material modifications: eg glass, carbon and aramid fibre, talc, MoS₂, graphite, PTFE, PE, silicone oil, internal lubrication
- Pultruded stock shapes: matrix polyester, vinylester and epoxy resin with glass or carbon continuous fibre