Product Information

P84®UHT 05P DF

HIGH TEMPERATURE RESISTANCE, UNFILLED POLYIMIDE

Polyimid P84®UHT - at a glance

- Excellent thermal-oxidative stability (use up to 300 ° C)
- High mechanical strength and dimensional stability even at very high temperatures
- Good creep resistance under load even at high temperatures
- Easy machinability with standard tools for metals
- Excellent tribological properties, high wear resistance
- Processing by direct forming

Application examples
bushings, seals, bearings components, guides, gear wheels, and valve parts
in the automotive and aerospace industries and in industrial equipment.

Key Features

Industrial Sector
Automotive and Mobility, Aircraft and Aerospace, Industry and Engineering

Processing
Press and sintering, Machining

Delivery form
Powder

Resistance to
Heat (thermal stability), Fire / burn, Wear / abrasion, Oil / fuels

Electrical
Insulating

Additives
Release agent, Unfilled

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**5100**	MPa	ISO 527
Tensile strength	**114**	MPa	ISO 527
Stress at break	**114**	MPa	ISO 527
Strain at break, B	**4.2**	%	ISO 527

Charpy impact strength, +23°C	**35**	kJ/m²	ISO 179/1eU
Type of failure	**C**	-	-
Charpy notched impact strength, +23°C	**3**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-
Compression modulus, 23°C	**4590**	MPa	ISO 604
Compressive strength , 23°C	**395**	MPa	ISO 604
Flexural modulus, 23°C	**4180**	MPa	ISO 178
Flexural strength, 23°C	**159**	MPa	ISO 178
Flexural strain at break, 23°C	**4.5**	%	ISO 178

Thermal properties	dry	Unit	Test Standard
Glass transition temperature, DSC	**290**	°C	ISO 11357-1/-2
Thermal conductivity, LFA, solid state	**0.33**	W/(m K)	ISO 22007-4
Temp. of deflection under load A, 1.80 MPa	**267**	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**288**	°C	ISO 75-1/-2
RTI 50% flexural strength	**296**	°C	IEC 60216
HIC	**11**	K	IEC 60216

Physical properties	dry	Unit	Test Standard
Density	**1360**	kg/m³	ISO 1183
Water absorption, 24h	**0.8**	%	ISO 62, ASTM D 570
Water absorption, 48h	**1**	%	ISO 62, ASTM D 570
Shore D hardness	**87**	-	ISO 7619-1
Density	**1360**	kg/m³	ASTM D 792

Powder properties	dry	Unit	Test Standard
Bulk density, powder	**400**	g/l	EN ISO 60

Polyimid	dry	Unit	Test Standard
Thermal Properties Polyimid			
RTI 50% flexural strength	**296**	°C	IEC 60216
HIC	**11**	K	IEC 60216
Tensile test			
Tensile modulus, 23°C	**5100**	MPa	ISO 527
Tensile strength, 23°C	**114**	MPa	ISO 527
Strain at break, 23°C	**4.2**	%	ISO 527
Flexural test			
Flexural modulus, 23°C	**4180**	MPa	ISO 178
Flexural strength, 23°C	**159**	MPa	ISO 178
Flexural strain at break, 23°C	**4.5**	%	ISO 178

Characteristics

Applications
Displays, Electrical and Electronical, General purpose, IT and telecommunication

Processing
DF Direct forming

Special Characteristics
Amorphous, High heat resistant, Non-dripping, Self-extinguishing

Features
Creep resistance, Low coefficient of friction, Lightweight

Color
Natural color, Beige

Additives
Release agent

Chemical Resistance
Acid resistance, Solvent resistance, Grease resistance, Oil resistance, Oxidation resistance, Radiation resistance, Fuel resistance

Compression molding

Direct forming
High number of small parts
Production of green parts at ambient temperature and very high pressure between 2 and 4 t/cm^2
Cycle time = seconds
Subsequent sintering at temperatures between 395 and 425°C
No or little machining necessary