Product Information

P84®UHT 15G HCM

HIGH TEMPERATURE RESISTANCE, GRAPHITE FILLED (15%) POLYIMIDE

Polyimid P84®UHT - at a glance

- Excellent thermal-oxidative stability (use up to 300 ° C)
- Best dimensional stability even at very high temperatures
- Low water absorption and very good chemical resistance
- Easy machinability with standard tools for metals
- Excellent tribological properties, high wear resistance
- Processing by hot compression molding

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
Hot compression moulding, Machining

Delivery form
Pellets, Granules, Powder

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

Electrical
Insulating

Additives
Lubricant

Mechanical properties ISO	dry	Unit	Test Standard
Tensile modulus	**7030**	MPa	ISO 527
Tensile strength	**106**	MPa	ISO 527
Stress at break	**106**	MPa	ISO 527

Strain at break, B	**2.3**	%	ISO 527
Charpy impact strength, +23°C	**28**	kJ/m²	ISO 179/1eU
Type of failure	**C**	-	-
Charpy notched impact strength, +23°C	**2**	kJ/m²	ISO 179/1eA
Type of failure	**C**	-	-
Compression modulus, 23°C	**6180**	MPa	ISO 604
Compressive strength , 23°C	**277**	MPa	ISO 604
Flexural modulus, 23°C	**5960**	MPa	ISO 178
Flexural strength, 23°C	**167**	MPa	ISO 178

Thermal properties	**dry**	**Unit**	**Test Standard**
Thermal conductivity, LFA, solid state	**0.8**	W/(m K)	ISO 22007-4
Glass transition temperature, DMA, 3 point bending	**279**	°C	ISO 6721-5
Temp. of deflection under load A, 1.80 MPa	**272**	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**318**	°C	ISO 75-1/-2

Physical properties	**dry**	**Unit**	**Test Standard**
Density	**1510**	kg/m³	ISO 1183
Water absorption, 24h	**0.1**	%	ISO 62, ASTM D 570
Water absorption, 48h	**0.1**	%	ISO 62, ASTM D 570
Shore D hardness	**86**	-	ISO 7619-1
Density	**1510**	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**

Tensile test

Tensile modulus, 23°C	**7030**	MPa	ISO 527

Tensile strength, 23°C	**106**	MPa	ISO 527
Strain at break, 23°C	**2.3**	%	ISO 527

Flexural test

Flexural modulus, 23°C	**5960**	MPa	ISO 178
Flexural strength, 23°C	**167**	MPa	ISO 178

Characteristics

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

Processing
Compression molding

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

Features
Creep resistance, Low coefficient of friction, Lightweight

Color
Natural color, Black

Additives
Conductive agent, Inorganic fillers

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

Compression molding

Hot compression molding
Production of big semi-finished parts (plates, rods, tubes)
Molding at high pressure (300 to 500 kg/cm^2) and temperature (385 and 415°C)
Cycle time = hours
Processing of precise parts by machining
Best mechanical properties

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