

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	1.02E6	psi	ISO 527
Tensile strength	15400	psi	ISO 527
Stress at break	15400	psi	ISO 527

Strain at break, B	2.3	%	ISO 527
Charpy impact strength, +23°C	13.3	ftlb/in ²	ISO 179/1eU
Type of failure	C	-	-
Charpy notched impact strength, +23°C	0.951	ftlb/in ²	ISO 179/1eA
Type of failure	C	-	-
Compression modulus, 23°C	896000	psi	ISO 604
Compressive strength, 23°C	40200	psi	ISO 604
Flexural modulus, 23°C	864000	psi	ISO 178
Flexural strength, 23°C	24200	psi	ISO 178

Thermal properties	dry	Unit	Test Standard
Thermal conductivity, LFA, solid state	5.55	BTU in/(hr ft ² °F)	ISO 22007-4
Glass transition temperature, DMA, 3 point bending	534	°F	ISO 6721-5
Temp. of deflection under load A, 1.80 MPa	522	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	604	°F	ISO 75-1/-2

Physical properties	dry	Unit	Test Standard
Density	1.51	g/cm ³	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	1.51	g/cm ³	ASTM D 792

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

Polyimid	dry	Unit	Test Standard
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Tensile test

Tensile modulus, 23°C	1.02E6	psi	ISO 527
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Tensile strength, 23°C	15400	psi	ISO 527
Strain at break, 23°C	2.3	%	ISO 527

Flexural test

Flexural modulus, 23°C	864000	psi	ISO 178
Flexural strength, 23°C	24200	psi	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/cm²) 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/cm²
Cycle time = seconds
Subsequent sintering at temperatures between 395 and 425°C
No or little machining necessary