

Excellent heat-resistant polyimide powder

UIP[®] Polyimide powder

UBE provides polyimide powders which have excellent heat-resistance and excellent chemical resistance.



UIP Products and Features

UIP[®] is an excellent heat-resistant polyimide powder, based on Biphenyl tetracarboxylic dianhydride (BPDA) originally developed by UBE.

UIP[®] Products

- UIP[®]-R** Heat-resistance, high impact-resistance, easy forming
- UIP[®]-S** Super heat-resistance, low creep, low water absorption, high modulus
- UIP[®]-SA** Super heat-resistance, low creep, low water absorption, easy forming

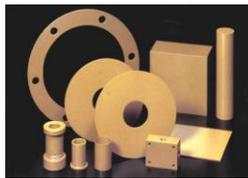


Common characteristic of UIP[®] :

High chemical resistance, high radiation/plasma resistance, flame retardance

Application example

- Raw material of polyimide shape
- Binder for diamond grindstone
- Compound for PTFE, Fluorocarbon elastomer, Phenolic resins



Polyimide shape

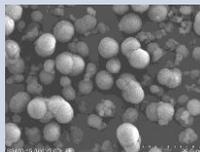
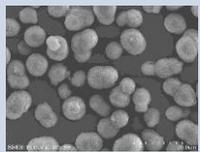
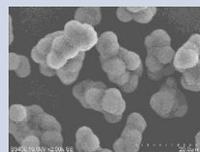


Diamond grindstone



O-ring/Packing

Characteristics of UIP[®]

Item	Unit	UIP [®] -R	UIP [®] -S	UIP [®] -SA
Average particle diameter	μm	7	8	19
Specific gravity	-	1.39	1.48	1.47
Aerated bulk density	g/cc	0.29	0.38	0.34
Angle of repose	deg	44	52	46
Temperature of 5% weight loss	°C	> 580	> 600	> 600
Moisture & volatile matter contents (50-350°C)	%	< 1.0	< 1.0	< 1.0
SEM image	-			

Characteristics of UIP® Shapes

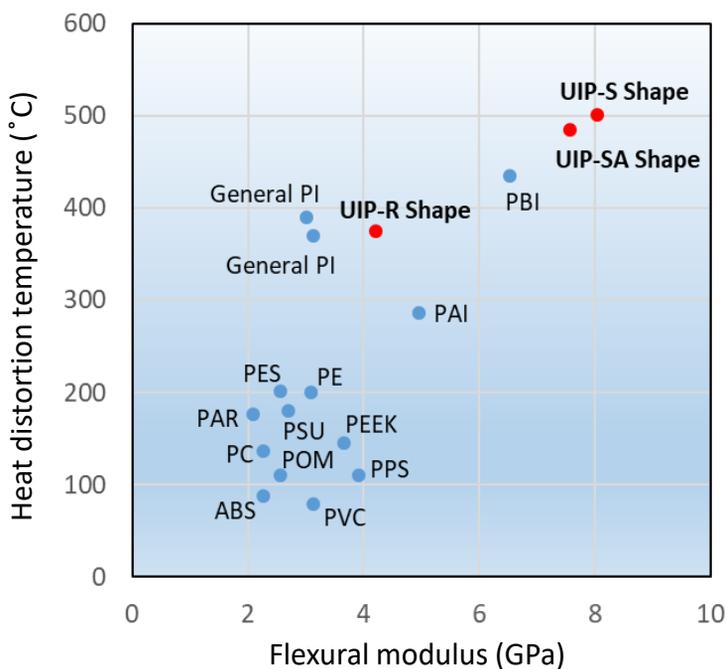
Item	Unit	UIP®-R Shape	UIP®-S Shape	UIP®-SA Shape	Measurement methods
Specific gravity	-	1.39	1.47	1.48	ASTM D-792
Water absorption	%	0.46 (48hr)	0.12 (48hr)	0.03 (24hr)	ASTM D-570
Tensile strength	MPa	120	80	110	ASTM D-638
Elongation	%	5	2	4	ASTM D-638
Flexural strength	MPa	160	100	140	ASTM D-790
Flexural modulus	GPa	4.2	8.0	7.5	ASTM D-790
Izod Impact (notched)	J/m	75	22	20	ASTM D-256
Rockwell hardness	M scale	114	113	115	ASTM D-785
Heat distortion temp.(1.82MPa)	°C	360	500	470	ASTM D-648
Coefficient of thermal expansion	ppm/°C	55 (20-250°C)	37 (20-250°C)	35 (25-450°C)	ASTM D-233
Tabar abrasion loss	mg/1000 cycle	15	-	20	ASTM D-1044
Limiting PV value	MPa•m/sec	1.7	2.2	-	S45C,0.5m/s

Position and Features

Features of UIP® shapes

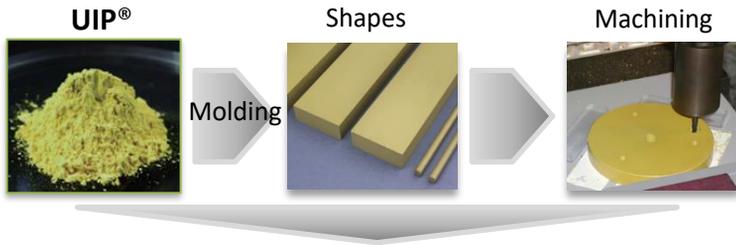
- Super high heat resistance
- Low outgas
- Good processability
- Low particles

Heat Distortion Temperature vs Flexural Modulus

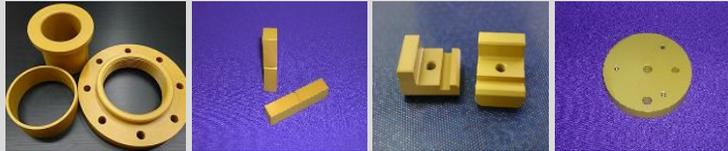


Process Flow of UIP® Shapes and Application Example

Process Flow of UIP® Shapes



Parts



Application Example

Electronics

- Micro-switch
- Guide piece
- Bearing
- Center pin
- Vacuum pad

Automotive

- Friction pad
- Valve seat
- Bushing
- Trust washer
- Bearing retainer

Machine

- Bearing sleeve
- Roller bushing
- Vane
- Piston ring

Aerospace

- Seal ring
- Piston ring
- Gear
- Locknut insert

Packing and Handling Precautions

Standard Packing

Packing	1kg Plastic bottle
	5kg Aluminum laminate bag

Handling Precautions

- UIP is extremely stable when properly stored. Please keep it in a cool, dark place when storing for a long period of time.
- Please refer to Safety Data Sheet (SDS) before use.

Content Statement

The content provided is based on materials, data and information currently available. No guarantee is made with regard to content, physical properties or hazardous and harmful effects. Furthermore, handling precautions relate to normal handling. In unique situations requiring special handling, please use safety measures appropriate for the application and process.

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