DuPont™ Vespel® Polyimide Shapes

Authorized Supplier of Authentic Vespel® Polyimide Shapes

Curbell PLASTICS

HIGH PERFORMANCE PARTS MADE FROM VESPEL® POLYIMIDE SHAPES:

- Provide strength and toughness to resist damage
- Withstand high temperatures
- Provide low wear and friction
- Hold tight tolerances
- Are first-class electrical insulators
- Have excellent machinability
- Resist chemical attack
- Offer high purity and low out-gassing

semiconductor • aerospace • high temperature applications

Put us to work – for you!™

Curbell Plastics has been supplying plastic sheet, rod, tube, films, adhesives, sealants, tapes, prototyping and tooling materials, and fabricated parts for over 65 years

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DuPont™ Vespel® Polyimide Shapes

Vespel® S Line offers Highly Durable, Versatile Polyimides
Vespel® shapes are available in five compositions of SP polyimide resin including an unfilled grade, Vespel® SP-1, and several low wear bearing grades: Vespel® SP-21, SP-22, SP-211, and SP-3.

Vespel® SP-1 for Physical and Electrical Properties
SP-1, the unfilled base resin (high purity), provides maximum physical strength, elongation, and toughness and the best electrical and thermal insulation properties. Semiconductor manufacturers often find components fabricated from Vespel® SP-1 shapes useful in production processes.

Vespel® SP-21 for Balanced Low Wear and Physical Properties
SP-21 has 15% graphite, by weight, added to the base resin for low wear and friction in applications such as bearings, thrust washers, bushings, seal rings, slide blocks, and other wear surfaces. SP-21 has the maximum physical strength, elongation, and toughness of the graphite filled resins.

Vespel® SP-22 for Low Wear and Dimensional Stability
SP-22 has 40% graphite, by weight, added to the base resin providing enhanced resistance to wear and friction as well as improved dimensional and oxidative stability. SP-22 has the lowest coefficient of thermal expansion.

Vespel® SP-211 for Low Coefficient of Friction and Unlubricated Wear Resistance
SP-211 has 10% TEFLON® resin and 15% graphite, by weight, added to the base resin to provide the lowest coefficient of friction over a wide range of operating conditions. It offers excellent wear resistance up to 300°F (149°C).

Vespel® SP-3 for Unlubricated Sealing and Low Wear in Vacuum or Dry Environments
SP-3 has 15% molybdenum disulfide (MoS_2), by weight, added to the base resin to provide lubrication for seals and bearings in vacuum or dry environments. SP-3 provides maximum wear and friction resistance in vacuum and other moisture-free environments, where graphite actually becomes abrasive.

Vespel® SCP-5000 for Strength, Hardness, and Chemical Resistance over Broad Temperature Range
SCP-5000 is an unfilled polyimide copolymer developed for demanding applications that require toughness, thermal and dimensional stability, chemical resistance, and stable dielectric performance across a broad temperature range.

wafer handling • seals • valves • fasteners gears • splines thrust washers • wear pads compressor and pump parts piston rings • bushings • bearings • hot glass handling

PROPERTY	METHOD	TEMP (°F)	UNITS	SP-1	SP-2	SP-22	SP-211	SP-3	SCP-5000
Tensile Strength (Ultimate)	ASTM D-638/ D-1708	73 500	psi psi	12,500 6,000	9,500 5,500	7,500 3,400	6,500 3,500	8,200 -	23,400 9,000
Elongation (Ultimate)	ASTM D-638/ D-1708	73 500	% %	7.5 7.0	4.5 2.5	3.0 2.5	3.5 3.0	4.0 -	7.0 >20
Flexural Modulus	ASTM D-790	73 500	psi psi	450,000 250,000	550,000 370,000	700,000 400,000	450,000 200,000	- -	836,000 436,000
Compressive Modulus	ASTM D-695	73	psi	350,000	420,000	475,000	300,000	-	1,330,000
Wear Rate (PV=25,000)	Unlub.	-	in/1000 hours	0.25-1.20	0.09	0.06	0.07	0.25-0.33	-
Friction Coefficient Dynamic Static Static in Vacuum	Unlub.	-	-	 0.29 0.35 -	 0.24 0.30 -	 0.20 0.27 -	 0.12 0.20 -	 0.25 - 0.03	 0.26 - -
Coefficient of Linear Thermal Expansion	D-696	73-500	10^{-6}in/ in°F	30	27	21	30	-	26
Dielectric Constant	D-150	73	@10^{4}Hz	3.64	13.28	-	-	-	3.31

Underwriters Laboratory Flame Rating: 94-V0

Our material partner DUPONT *The miracles of science™*

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For a complete list of addresses, contact information, materials, or to request a quote please visit our website: www.curbellplastics.com

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