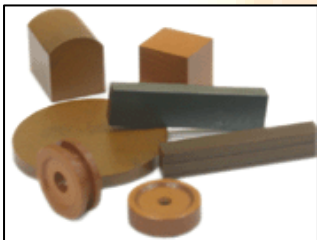




Plavis[®] Polyimide Shapes

Offered Exclusively by **PROFESSIONAL PLASTICS**

Plavis[®] Polyimide Shapes provide superior high temperature resistance, excellent wear and friction properties, good electrical and physical properties and chemical inertness. Plavis exhibits outstanding resistance to creep as well as lubricated or unlubricated performance, ultra-low outgassing, excellent mechanical strength and superior impact resistance. Plavis polyimide is providing application solutions in the industries of aircraft and aerospace, automotive, electrical and electronics, chemical and mechanical engineering, semiconductors and more.



Comparable Materials to Plavis[®] Polyimide:

Plavis[®] N is comparable to Vespel[®] SP-1
Plavis[®] G15 is comparable to Vespel[®] SP-21
Plavis[®] G40 is comparable to Vespel[®] SP-22
Plavis[®] MS is comparable to Vespel[®] SP-3

Notable Benefits of Plavis[®]:

- High-Temperature Performance.
- Wear-Resistance & Creep Resistant
- Chemical Resistance & Ultra Low Outgassing
- Radiation Resistance
- Good Electrical Properties - Insulative
- Easy to Machine
- Isostatically molded for uniform multidirectional performance.



Mechanical Properties:

Superior tensile strength and flexural modulus. Outstanding creep resistance at high temperature. Suitable where very high temperatures and excellent wear properties are required

Electrical Properties

Shows superior electrical insulation in high temperature and high radiation environments.

Chemical Properties:

Dimensionally stable, maintains mechanical properties even after long term exposure to organic solvents in a wide temperature range.

Wear and Friction Properties:

PL-G Grade offers high PV limit and low friction coefficient in a wide temperature range.

Fabrication & Machinability:

Easy to fabricate precise parts using traditional metal cutting technology.

Mechanical/Caloric Properties:

Elastic stress limit of Plavis is very high (about 500~900kg/cm²) even with pulling tension and winding elasticity at very high temperature. Mechanical performance is consistent throughout the operating temperature range. Generally, the coefficient of linear expansion of plastic is higher than metal.

However, Plavis is in between a general purpose engineering plastic and metal.

For example, Plavis-G15 / Plavis G-40 filled with graphite, has the same numerical value of aluminum.

Also, Plavis has high creep resistance, so creep properties at high temperatures are much better than other plastics. Plavis is suitable for applications that require high temperature and friction resistance. In the case of Plavis G-40, creep at 300°C for 1,000 hrs. is only 1%.

Electrical Properties:

Plavis-N grade (unfilled) has electrical insulation properties within a broad temperature range. Offers superior performance in severe conditions as an insulating material even when exposed to high radiation levels.

Abrasion Resistance & Frictional Properties:

Plavis G-grade, which contains graphite and molybdenum disulfide, has the best dry abrasion resistance of all Plavis grades. When additional lubrication is added, Plavis provides even longer term abrasion resistance. This superior material has a higher PV limit and lower coefficient of friction than many other materials.

Resin Designation	Description	Characteristics
Plavis – N (compare to Vespel SP-1)	Unfilled	Superior chemical and radiation resistance. Very high electrical and heat insulating properties. Low gas drain and superior physical properties.
Plavis – G15 (compare to Vespel SP-21)	Graphite 15%	High wear resistance, low coefficient of friction. Used for rotating parts such as mechanical seal faces, bearings and bushings.
Plavis - G40 (compare to Vespel SP-22)	Graphite 40%	Higher abrasion resistance, lower coefficient of friction, higher dimensional stability.
Plavis – MS (compare to Vespel SP-3)	Molybdenum Disulfide 15%	Very high abrasion resistance with a very low coefficient of friction in vacuum or without lubrication.

Summary of Typical Properties

Property	ASTM	Unit	Value				
			PL-N	PL-G15	PL-G40	PL-MS	
Tensile Strength	D-1708	Mpa	296K	92.1	78.7	73.2	78.5
			533K	50.4	47.1	41.1	-
Flexural Strength	D-790	Mpa	296K	125.5	86.2	85.7	85.8
			533K	58.8	53.9	48.1	51.0
Flexural Modulus	D-790	Mpa	296K	3057.8	2738.0	4711.1	2942.0
			533K	1706.4	2304.6	2755.7	2353.6
Elongation	D-1708	%	296K	12.8	11.2	9.5	6.3
			533K	8.9	7.4	5.7	-
Compressive Stress	D-695	Mpa	1% strain	22.5	23.3	28.1	29.4
			10% strain	165.0	106.0	98.4	103.0
Compressive Modulus	D-695	Mpa	2314.4	2824.3	2834.1	2451.7	
Shear Strength	D-732	Mpa	69.9	61.9	49.6	-	
Impact Strength Izod(notched)	D-256	J/m	50	45	36	-	
Friction coefficient		PV=1MPa·m/sec	0.24	0.2	0.11	-	
Coefficient of Linear Expansion	D-696	µm/m/°K	56	35	25	40	
Specific Heat		J/Kg/K	1181.58	1169.01	1169.01	-	
Dielectric Constant	D-150	@10 ⁶ Hz	2.91	-	-	-	

Dissipation Factor	D-150	@10 ⁶ Hz(10 ⁻³)	3.6	-	-	-
Volume Resistivity	D-257	Ω-m	10 ¹³ ~10 ¹⁴	10 ¹² ~10 ¹³	10 ³ ~10 ⁴	-
Water Absorption (%)	D-570	50%RH	0.95	0.9	0.8	0.9
Specific Gravity	D-792	g/cm ³	1.39	1.44	1.62	1.55
Hardness	D-785	Rockwell M	75~85	68~78	66~70	70~75
Limiting Oxygen Index	D-2863	50%	55	54.15	53.7	
Thermal Properties	Thermal decomposition temperature (°,onset point, rate 10°/min, in air)			616		623
	Thermal 50% weight reduction (min 520° during 300 minutes in air)			240		250

* Data shown above are representative values for reference purpose only, and not to be construed as a warranty of minimum specifications.

Call **PROFESSIONAL PLASTICS**

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