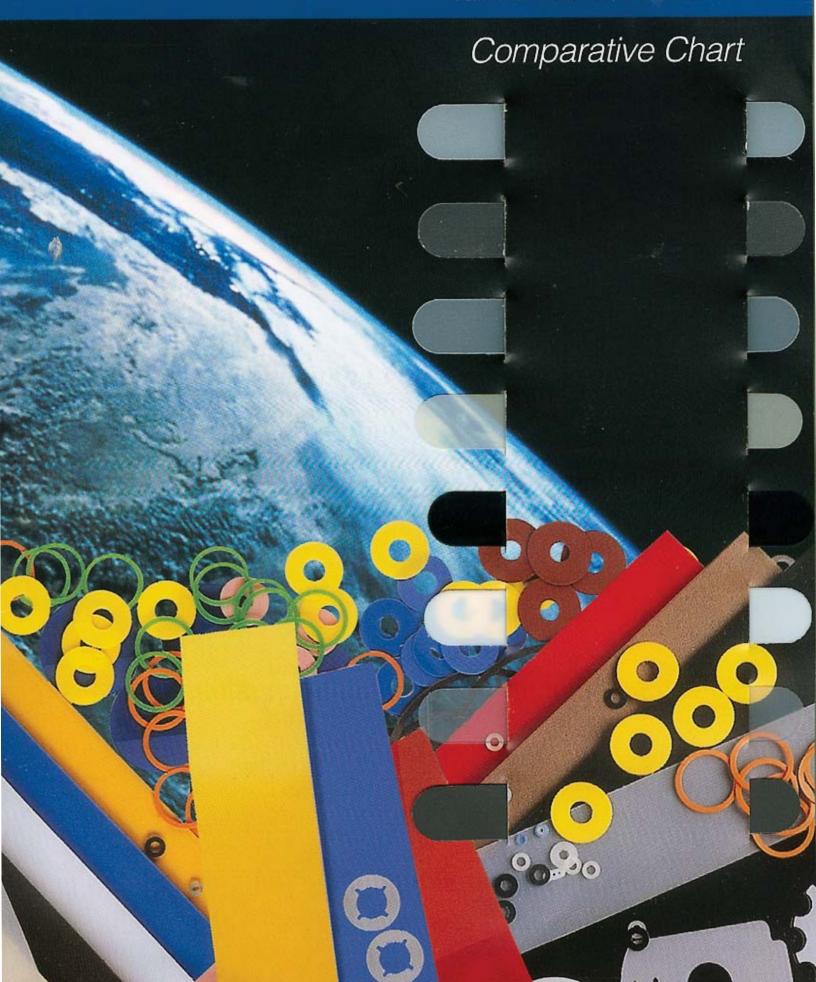
PENN FIBRE PLASTICS, INC. SINCE 1937



NSINGER/PennFibre specializes in offering a vermoplastic and thermoset materials in thin gents for a broad range of industrial application AG specifications are met where applicable. Penn Fibre's standard and custom products nat you need, call our Sales Engineers for mocommendations at (800) 662-7366.	auge strip, sheet, rolls and punched s. All Federal, Military, ASTM and This chart presents a portion and materials. If you don't see	Comparative Cost	Elongation, % At Break, DAM*	Maximum Continuous Service Temperature °F	Dialeltric Strength, Volts/MII	Tensile Strength, PSA DAM*
POLYETHYLENE	Polyethylene Low, medium, high density available. Light weight, flexible. Lowest cost material with excellent chemical resistance and toughness. Low temperature impact properties are poor, Sample displayed: high density polyethylene.	Low	1100	150	500	4,000
POLYPROPYLENE	Polypropylene Copolomers and homopolymers available. Tough light weight and rigid. Outstanding flexural fatigue properties (living hinge) Good abrasion resistance. Flame retardant grades available. Sample displayed polypropylene homopolymer.	Moderate	300	160	500	5,000
UHMWPE	UHMWPE (3 to 5 MM Molecular weight) The "poor man's" fluorocarbon. Chemical resistance, superior impact properties, great electricals and the best abrasion resistance of all materials. Available in tape and strip with and without pressure sensitive adhesive backing.	Moderate	5	200	320	3,500
POLYESTER (PET)	Mylar** Oriented Mylar* and Melinex* and oriented PET available up to 0.014" thick. Great chemical resistance and high tensile strength. Good bearing material. Material displayed, Mylar*.	Moderate	50	230	750	25,000
POLYESTER (IMPACT MODIFIED)	Riteflex**, Vandar**, Hytrel** Alloying technology provides a wide array of malerial properties for many applications. Low temperature impact, flexibility, good chemical resistance and high notched tool impact values. Malerial displayed Vandar** 2100	High	20	220	385	6,300
POLYESTER (PBT)	Celanex*, Ultradur*, Rynite*  These polymers show high heat resistance, low creep, excellent electrical properties and good bearing properties. Could be a good choice for replacement of some metals and thermosets. Flame retardant grades available. Material can be sublimation (transfer) printed. Material displayed is Celanex* 1600A.	Moderale	200	230	500	10,000
NYLON (POLYAMIDE) 6/8, 6, 11, 12, 6/12, ETC.	Ultramid <sup>a</sup> , Grilamid <sup>a</sup> , Zytel <sup>a</sup> , Polypenco <sup>a</sup> 101  Nylons are known for their toughness, bearing properties, chemical resistance and relatively high service temperature. Penn Fibre processes all nylon formulations both filled and neal. Not for typically well environments. (limiting PV is 3,500) Material displayed is Polypenco <sup>a</sup> 101.	Moderale	60	220	475	25,000
NYLON (POLYAMIDE) MDS	MDS, Nylatron* GS Nylon 6/6 filled with Molybdenum disulfide has exceptional bearing and wear properties and physical properties about 20% higher than its unfilled counterpart. Low coefficient of friction. (limiting PV is 3,500) Material displayed is Pennite Nylatron* GS.	Moderate	60	220	300	12,000

\*DAM = Dry as Molded

	Comparative Cost	Elongation, % At Break, DAM*	Maximum Continuous Service Temperature °F	Dialellric Strength, Volts/Mil	Tensile Strength, PSA DAM*
Zytel 45 HSB  Nylon 6/6 with a heat stabilizer boosts the continuous service temperature up about 80 F, over its unstabilized counter part. All other properties remain the same. Black (weather stabilized) also available.  Material displayed is Zytel 45 HSB.	High	60	300	400	12,000
Nylon 6/6 and 6 with glass fibers added for strengthening and stiffening the BASF polymer. Mechanical properties more than double, while elongation drops substantially. Reduces water absorption. Blends typically contain 13% and 33% glass fibers. Material displayed is Pennite* nylon 6/6 with 13% glass fibers.	High	5	250	475	25,000
Delrin®, Ultraform®. Celcon® This polymer has superior mechanical properties. Should be used in place of nylon 6/6 in bearing and wear applications in wet environments. Has very low coefficient of friction. (timiting PV is 4,500) Material displayed is acetal copolymer.	Moderate	75	210	380	10,000
Delrin® AF Blend This is acetal homopolymer with 12% PTFE fibers added for low friction and non stick properties. Features are: no slip-stick, no lubrication necessary and superior bearing and wear properties. Boosts limiting PV to 7,500. Material displayed is Delrin® AF Blend.	Premium	20	210	500	7,600
ESD Materials  Static dissipative and conductive polymers. Acetal, polyethylene, polypropylene, polycarbonate, nylons, and other polymers. Ohms resistance from 10° to 10° for applications requiring a thermoplastic material and where static bleed or conductivity is required. Material displayed is static dissipative polycarbonate (10′ to 10° ohms resistance).	High	800	150 to 220	N/A	4,500
Ultem <sup>a</sup> This amorphous polymer is especially suited for electrical/electronic applications in high temperature environments. Light weight coupled with flame retardancy and lowest smoke generation of all plastics make it a candidate for aircraft applications. Material displayed is Ultem <sup>a</sup> 1000. (crazing can occur with oil under stress). Material displayed is Ultem <sup>a</sup> 1000.	Premium	60	320	800	15,000
Teflon®, Fluoropolymers Unequaled chemical resistance, high temperature resistance, non-slicking, non-flammable, unusually good electrical properties, low coefficient of friction, and non burning. Available in electrical and mechanical grades as well as glass reinforced grades. Material displayed is unfilled, electrical grade Teflon®.	High	150	500	500	2,000
Paper, linen & canvas laminated phenolic, G-7, G-9, G-10, G-11 and vulcanized fiber. Thermosetting materials fortilied with various additives to improve mechanical properties. Mostly used in form of punched and fabricated parts for electrical and mechanical applications. Material displayed is vulcanized liber.	Moderate	5	300	700	13,000

## Plastic Comparative Chart and Samples

Typical properties and cost of materials most commonly used in mechanical, electrical and chemical applications.





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