



# MACH 1

## UHMPE Polymer Sheet

### Physical Properties

Ultra high Mechanical Polyethylene (UHMPE) is a superior resin engineered to operate in demanding applications combining low co-efficient of friction, excellent abrasion resistance and high impact. Mach1 UHMPE sets the standard for general purpose engineered plastic applications by combining wear, low friction, corrosion resistance and impact strength. Mach1 UHMPE retains key physical properties in sub-zero temperatures and is resistant to chemical attack. This resin is UV protected for outdoor applications. FDA contact and non-contact uses are acceptable as this resin complies with FDA regulations.

<b>TECHNICAL INFORMATION</b>			
<b>Property</b>	<b>Method</b>	<b>Unit</b>	<b>Nominal</b>
Density	ASTM D-792	g/cm <sup>3</sup>	0.940
Tensile strength	ASTM D-638	psi	4,075
Tensile modulus	ASTM D-638	psi	115,000
Elongation at break	ASTM D-638	%	500
Flexural modulus	ASTM D-790	psi	115,000
Flexural strength	ASTM D-790	psi	3,000
Izod impact, notched	ASTM D-4020	ft-lbs/in <sup>2</sup>	no break
Compressive modulus	ASTM D-695	psi	80,000
Compressive strength (10% Def.)	ASTM D-695	psi	2,900
Hardness	ASTM D-2240	Shore D	58
Coefficient of Friction - Static	1018 Steel = 0.7	-	0.08 - 0.120
Coefficient of Friction - Dynamic	1018 Steel = 0.42	-	0.02 - 0.05
Coefficient of linear thermal expansion	ASTM D-696	in/in/°F	4.8 x 10 <sup>-5</sup>
Heat deflection temperature, 66 psi	ASTM D-648	°F	169
Environmental Stress Crack Resistance	ASTM D-1693	100% Igepal	> 750 hrs
Volume resistivity	ASTM D-257	Ohm-cm	>10 <sup>13</sup>
Surface resistivity	ASTM D-257	Ohm	>10 <sup>13</sup>
Brittleness Temperature	ASTM D746	°F	< - 146
Vicat softening temperature	ASTM D-1525	°F	248
Max. operating / service temp (air)		°F	175
Water absorption 24hrs.	ASTM D-570	%	0.01

\*All values are determined on specimens prepared according to ASTM 1248-84 "Standard Specifications for Polyethylene Plastic Molding and Extrusion Materials". Nominal values should NOT be interpreted as specifications.

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