



# ISOPLAST\* 101 LGF40 NAT

## Engineering Thermoplastic Polyurethane Resin

Property	Test Method	English		S.I	
		Values <sup>†</sup>	Units	Values <sup>†</sup>	Units
<b>PHYSICAL PROPERTIES</b>					
Mold Shrinkage	ASTM D 955	0.001	in/in	0.001	mm/mm
Water Absorption, 24 hrs @ 73°F (23°C)	ASTM D 570	----	%	----	%
Specific Gravity	ASTM D 792	1.51	----	1.51	----
<b>MECHANICAL PROPERTIES</b>					
Tensile Strength at Yield	ASTM D 638	27,000	psi	186	MPa
Tensile Strength at Break	ASTM D 638	27,000	psi	186	MPa
Elongation at Yield	ASTM D 638	2	%	2	%
Elongation at Break	ASTM D 638	2	%	2	%
Tensile Modulus	ASTM D 638	1,700,000	psi	12,000	MPa
Flexural Strength	ASTM D 790	45,000	psi	310	MPa
Flexural Modulus	ASTM D 790	1,500,000	psi	10,000	MPa
Izod Impact Strength	ASTM D 256				
Notched, 1/8" (3.2 mm), 73° (23°C)		8	ft-lb/in	427	J/m
Notched, 1/8" (3.2 mm), -40° (-40°C)		8	ft-lb/in	427	J/m
Instrumented Dart Impact	ASTM D 3763				
Total Energy at 73°F (23°C)		270	in-lb	31	J
Total Energy at -20°F (-29°C)		150	in-lb	17	J
<b>THERMAL PROPERTIES</b>					
Deflection Temperature Under Load	ADTM D 648				
66 psi (0.45 MPa), unannealed		----	°F	----	°C
66 psi (0.45 MPa), annealed		----	°F	----	°C
264 psi (1.8 MPa), unannealed		200	°F	93	°C
264 psi (1.8 MPa), annealed		210	°F	99	°C
Vicat Temperature	ADTM D 1525	366	°F	186	°C
Coefficient of Linear Thermal Expansion	ADTM D 696	0.8	10 <sup>-5</sup> in/in/°F	1.4	10 <sup>-5</sup> mm/mm/°C
<b>PROCESSING INFORMATION</b>					
Recommended Drying Temperature		180-210	°F	82-99	°C
Recommended Melt Temperature <sup>(1)</sup>		460-500	°F	238-260	°C
Recommended Mold Temperature		150-190	°F	66-88	°C

<sup>†</sup>Typical values, not to be construed as specifications. Users should confirm results by their own test.

<sup>(1)</sup>Under no circumstances should glass reinforced resins be heated above 500°F (260°C) during molding or purging. This might cause decomposition, leaving a glass-enriched melt which cannot be extruded, and therefore, could seize the screw.

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NOTICE REGARDING LONG-TERM MEDICAL IMPLANT APPLICATIONS: The Dow Chemical Company does not recommend any medical grade resin or film product for long-term medical implant applications in humans, i.e., for more than 72 hours (except 30 days, for PELLETHANE\* polyurethane elastomers). Further, Dow does not recommend the use of any resin (or film) product in cardiac prosthetic devices regardless of the time period that the device will be wholly or partially implanted in the body. Such applications include, but are not limited to, pacemaker leads and devices, cardiac prosthetic devices such as artificial hearts, heart valves, intra-aortic balloons and control systems, and ventricular bypass assist devices. Dow does not recommend any nonmedical grade resin (or film) product for use in any human implant applications.

For additional information call The Dow Chemical Company at 1-800-232-2436.



# CHEMICAL RESISTANCE OF 40% LONG GLASS FIBER POLYURETHANE

## Test Procedures

All tests were conducted by immersing an injection-molded, 0.125-inch thick sample of the chemical. Unless otherwise indicated, the samples were exposed for 28 days at 73F, then were removed and tested.

Chemical	Change in Weight (%)	Strength at Yield (%)	Elongation at Yield (%)	Modulus
Acetic Acid, 5%	+0.7	90	96	88
Acetic Acid, 20%	+0.7	96	98	-
Acetic Acid, glacial	+5.3	82	106	80
Ammonia, concentrated	+1.0	86	86	97
ANDEROL, 401 Lubricant	-	119	87	-
ASTM Fuel A	+0.2	103	97	-
ASTM Fuel B	+0.2	101	97	-
ASTM Fuel C	+0.2	101	100	-
ASTM #1 Oil	+0.2	111	103	-
ASTM #3 Oil	+0.3	101	102	-
Benzene	+1.4	89	100	93
Calcium Chloride, saturate	+0.4	103	97	-
Carbon Tetrachloride	+0.2	98	98	103
Clorox Bleach	+0.5	93	94	102
Cottonseed Oil	+0.2	106	94	102
Diocetyl Phthalate	+0.2	106	97	-
Ethanol, 50%	+1.0	91	98	92
Ethanol, 95%	+2.5	83	98	84
Ethylene Glycol, 100%	-0.3	103	110	98
Ethylene Glycol, 50%	+0.3	94	100	94
Freon Fluorocarbon	0	105	91	-
Gasoline, high test	+0.1	101	102	-
Heptane	0	102	100	103
Hydrochloric, Acid, 20%	+0.2	96	96	96

\* 28 days at 158°F

\*\* 21 days at 73°F.

Chemical	Change in Weight (%)	Strength at Yield (%)	Elongation at Yield (%)	Modulus
Hydrogen Peroxide, 3%	+0.6	92	90	84
Hydrogen Peroxide, 30%	+0.8	90	96	96
Isopropanol	+0.2	100	106	99
Kerosene	-0.1	101	96	104
Magnesium Chloride, saturated	-	128	141	-
Mineral Oil	+0.2	101	98	-
Motor Oil, 10W40	+0.3	101	100	-
Mr. Clean Cleaner	+0.7	93	98	-
Nitric Acid, 40%	+1.1	95	102	94
Perchloroethane	+0.6	102	102	109
Phosphoric Acid, 60%	+0.6	99	100	-
Sodium Chloride, 10%	+0.2	92	92	90
Sodium Hydroxide, 10%	+0.3	94	94	108
Sodium Hydroxide, 20%	+0.6	98	100	-
Sulfuric Acid, 20%	+0.5	97	98	-
Sulfuric Acid, 30%	+0.3	97	93	97
Sulfuric Acid, 70%	-0.1	101	102	100
Toluene	+1.5	97	98	111
Transmission Fluid, Type A	+0.2	101	103	-
Tricresyl Phosphate	0	106	102	-
Triethylamine	-0.2	104	104	104
Water, distilled	+0.6	89	92	106
Water, distilled*	+1.5	106	110	-
Water, sea	+0.8	92	97	-
Zinc Chloride, 50%**	-	106	102	104

## FLANGED HEX NUTS

Size Code No.	Thread Size	A	B	C	D	E
-1	3/8-16	.635	.555	.745	.750	.120
-5	1/2-13	.840	.730	1.000	.855	.130
-7	5/8-11	1.050	.920	1.250	1.220	.130
-9	3/4-10	1.285	1.120	1.950	1.590	.130
-12	1-8	1.750	1.475	2.000	1.750	.188

Material Code No. -81

Material Name: Isoplast™, 40% Long Glass Fiber (gray)

