

Physical Properties Bulletin

Polytek Poly-Optic® 14 Series Liquid Plastics

Poly-Optic® Product	1410	1411	1412	1420	14-70	1490
Mix Ratio, By Weight (By Volume)	3A:2B	100A:90B (1A:1B)	1A:1B (1A:1B)	2A:1B	4A:5B	100A:90B (1A:1B)
Part A Color	Water Clear	Water Clear	Water Clear	Water Clear	Water Clear	Water Clear
Part B Color	Water Clear	Water Clear	Water Clear	Water Clear	Water Clear	Water Clear/Slight Yellow
Mix Viscosity (cps)	700	600	750	250	340	690
Pot Life (min)	15	9	8	15	15	9
Maximum Exotherm, °F(°C) (1-lb mass)	265 (129)	228 (109)	235 (113)	311 (155)	190 (88)	235 (113)
Demold Time (hr)	2 (1-inch thick)	0.5 (½-inch thick)	0.5 @ 175°F (80°C)	8 @ 150°F (65°C) 0.5 @ 175°F (80°C)	24-48	1
Total Cure Time (days)	7	7	16 hr @ 175°F (80°C)	See Above	7	7
Linear Shrinkage	ND	0.0018	0.0019	ND	0.0016	0.0070
Specific Gravity	1.07	1.07	1.07	1.05	1.06	1.07
Shore Hardness	D80	D80	D80	D85	A70	D80
Tensile Strength, psi (MPa)	4,566 (31.5) 7,870 (54.3)**	6,083 (42.0) 7,922 (54.6)**	9,825 (67.8)**	7,900 (54.5)**	564 (3.9)	6,605 (45.6) 8,744 (54.3)**
Elastic Modulus, psi (MPa)	96,830 (667.8) 127,474 (858.4)**	133,956 (923.8) 145,785 (1,005.4)**	179,886, (1,240.6)**	171,500 (1,182.7)**	85 (14.9) Die B Tear Strength, pli	96,260 (663.9) 128,837 (74.3)**
Flexural Strength, 5% Strain, psi (MPa)	4,893 (33.7) 10,636 (73.4)**	8,478 (58.5) 10,829 (74.7)**	12,261 (84.6)**	12,600 (86.9)**	NA	10,847 (74.8) 10,776 (74.3)**
Flexural Modulus, psi (MPa)	144,158 (994.2) 241,450 (1,665.2)**	250,992 (1,730.9) 270,545 (1,865.8)**	295,101 (2035.1)**	250,000 (1,724.1)**	NA	324,248 (2236.2)** 282,554 (1948.6)**
Heat Deflection Temperature, °F (°C)	100 (38) 149 (65)**	138 (58) 187 (86)**	227 (109)**	168 (75)**	NA	165 (74) 207 (97)**
% Elongation	27.0 12.0**	7.0 9.8**	11.1**	5.3**	234.0	7.7 12.1**

* Shrinkage is primarily caused by gelling while hot then cooling. Parts that cure with minimal temperature rise exhibit minimal shrinkage.

** Post cured for 16 hours at 160°F (70°C)

Conventions:

psi/145 = MPa (megapascals)

pli x .1751 = kN/m (kilonewtons per meter)

NA = Not Applicable

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