

Physical Properties Bulletin

Polytek Poly-Optic® 14 Series Liquid Plastics

Poly-Optic® Product	1410	1411	1412	1420	14-70
Mix Ratio, By Weight (By Volume)	3A:2B	100A:90B (1A:1B)	1A:1B (1A:1B)	2A:1B	4A:5B
Part A Color	Water Clear	Water Clear	Water Clear	Water Clear	Water Clear
Part B Color	Water Clear	Water Clear	Water Clear	Water Clear	Water Clear
Mix Viscosity (cps)	700	600	750	250	340
Pot Life (min)	15	9	8	15	15
Maximum Exotherm, °F(°C)	265 (129)	228 (109)	235 (113)	311 (155)	190 (88)
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
Total Cure Time (days)	7	7	16 hr @ 175°F (80°C)	See Above	7
Linear Shrinkage	*	*	*	*	*
Specific Gravity	1.07	1.07	1.07	1.05	1.06
Shore Hardness	D80	D80	D80	D85	A70
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)
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
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
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
Heat Deflection Temperature, °F (°C)	100 (38) 149 (65)**	138 (58) 187 (86)**	227 (109)**	168 (75)**	NA
% Elongation	27.0 12.0**	7.0 9.8**	11.1**	5.3**	234.0

* 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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