SG Acrylic Properties

Physical	Test method	Units	OPTIX	DURAPLEX OPTIX SG05 (50%)	DURAPLEX OPTIX SG10 (100%)
Specific Gravity/Relative Density	ASTM D-792 / ISO 1183		1.19	1.17	1.15
Optical Refractive Index	ASTM D-542 / ISO 489/A		1.49		
Light Transmission -Total	ASTM D-1003 / ISO 13468-1	%	92	92	90
Light Transmission - Haze	ASTM D-1003 / ISO 14782	%	2	2	>3
Sound Transmission	ASTM E90 / E413	db	27		
Water Absorption	ASTM D-570 / ISO 62	% By wt	0.4	0.3	0.3
Mold Shrinkage	ASTM D-955	mils/in	2-6	3-6	3-6

Chemical	Test method	Units	OPTIX
Resistance to Stress - Critical Crazing Stress to: Isopropyl Alcohol	ARTC Modification of MIL-P6997	psi	900
Resistance to Stress - Critical Crazing Stress to: Lacquer Thinner	ARTC Modification of MIL-P6997	psi	500
Resistance to Stress - Critical Crazing Stress to: Toluene	ARTC Modification of MIL-P6997	psi	1,300
Resistance to Stress - Critical Crazing Stress to: Solvesso 100	ARTC Modification of MIL-P6997	psi	1,600

Mechanical	Test method	Units	OPTIX	DURAPLEX OPTIX SG05 (50%)	DURAPLEX OPTIX SG10 (100%)
Tensile Strength	ASTM D-638 / ISO 527	psi	11,030	8,000	5,600
Tensile Elongation – Max.	ASTM D-638 / ISO 527	%	5.8		
Tensile Modulus of Elasticity	--	psi	490,000	340,000	250,000
Flexural Strength	ASTM D-790 / ISO 178	psi	17,000	12,000	8,300
Flexural Modulus of Elasticity	ASTM D-790 / ISO 178	psi	490,000		
Izod Impact Strength – Molded Notch	ASTM D-256 / ISO 180	ft-lb/in Notch	0.4	0.7	1.1
Izod Impact Strength – Milled Notch	ASTM D-256 / ISO 180	ft-lb/in Notch	0.28		
Ball Drop Impact	/ DIN 52306			Pass	Pass
Tensile Impact Strength	ASTM D-1822	$ft\text{-}lb/in^2$	20		
Abrasion Resistance - Change in Haze - 0 cycles	ASTM D-1044 / ISO 9352	Haze, %	0		
Abrasion Resistance - Change in Haze - 10 cycles	ASTM D-1044 / ISO 9352	Haze, %	11.2		
Abrasion Resistance - Change in Haze - 50 cycles	ASTM D-1044 / ISO 9352	Haze, %	24		
Abrasion Resistance - Change in Haze - 200 cycles	ASTM D-1044 / ISO 9352	Haze, %	24.9		
Rockwell Hardness	ASTM D-785 / ISO 2039-2		M-95	M-68	M-46

Thermal	Test method	Units	OPTIX
Maximum Recommended Continuous Service Temperature		°F	170-190
Softening Temperature		°F	210-220
Melting Temperature		°F	300-315
Melt Flow Rate	ASTM D-1238	g/10 min.	1.5
Deflection Temperature @ 264 psi (1.8 MPa)	ASTM D-648 / ISO 75-2/A	°F	203
Deflection Temperature @ 66 psi (0.45 MPa)	ASTM D-648	°F	207
Coefficient of Thermal Expansion	ASTM D-696 / ISO 11359	in/(in-°F) x 10^{-5}	3.0
Thermal Conductivity	ASTM C-177	BTU-ft/(hr-ft^2-°F)	0.075
Flammability (Burning Rate)	ASTM D-635	In/minute	1.019
Flammability	UL 94 / UL 94		HB
Smoke Density Rating	ASTM D-2843	%	3.4
Self-Ignition Temperature	ASTM D-1929	°F	833
Flame Spread Index	ASTM E-84		115
Smoke Developed Index	ASTM E-84		550