

Hylex® P1010L Ravago Manufacturing Americas, LLC - Polycarbonate

Monday, 12 August 2013

General Information					
General					
Material Status	Commercial: Active				
Availability	North America				
Features	 General Purpose 	Good Flow	Good Mold Release		
Uses	 General Purpose 				
Agency Ratings	• FDA 21 CFR 177.1580				
RoHS Compliance	 RoHS Compliant 				
Forms	• Pellets				
Processing Method	Injection Molding				

Specific Gravity 1.20 g/cm²	ASTM and ISO Properties ¹				
Meit Mass-Flow Rate (300°C/1.2 kg) 10 g/10 min ASTM D1238 Molding Shrinkage - Flow 0.50 to 0.70 % ASTM D955 Water Absorption (24 hr) 0.15 % ASTM D570 Mechanical Nominal Value Unit Test Method Tensile Strength (23°C) 69.6 MPa ASTM D638 Tensile Elongation (Break, 23°C) 120 % ASTM D638 Flexural Modulus (23°C) 2340 MPa ASTM D790 Flexural Strength (23°C) 93.1 MPa ASTM D790 Impact Nominal Value Unit Test Method Notched Ized Impact (23°C, 3.18 mm) 800 J/m ASTM D256 Hardness Nominal Value Unit Test Method Rockwell Hardness (M-Scale) Nominal Value Unit Test Method Rockwell Hardness (M-Scale) Nominal Value Unit Test Method Deflection Temperature Under Load 11 C ASTM D648 1.8 MPa, Unannealed 132 °C ASTM D648 1.8 MPa, Unannealed 132 °C ASTM D550 Vicat Softening Temperature Momental Value <	Physical	Nominal Value	Unit	Test Method	
Molding Shrinkage - Flow 0.50 to 0.70 % ASTM D955 Water Absorption (24 hr) 0.15 % ASTM D570 Mechanical Nominal Value Unit Test Method Tensile Strength (23°C) 69.6 MPa ASTM D638 Flexural Modulus (23°C) 2340 MPa ASTM D638 Flexural Strength (23°C) 93.1 MPa ASTM D790 Impact Nominal Value Unit Test Method Notched Izod Impact (23°C, 3.18 mm) 800 J/m ASTM D256 Hardness Nominal Value Unit Test Method Rockwell Hardness (M-Scale) 80 J/m ASTM D785 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 141 °C ASTM D648 1.8 MPa, Unannealed 132 °C ASTM D648 1.8 MPa, Unannealed 132 °C ASTM D552 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 hm·cm <td>Specific Gravity</td> <td>1.20</td> <td>g/cm³</td> <td>ASTM D792</td>	Specific Gravity	1.20	g/cm³	ASTM D792	
Water Absorption (24 hr) 0.15 % ASTM D570 Mechanical Nominal Value Unit Test Method Tensile Strength (23°C) 69.6 MPa ASTM D638 Tensile Elongation (Break, 23°C) 120 % ASTM D638 Flexural Modulus (23°C) 3340 MPa ASTM D790 Flexural Strength (23°C) 39.1 MPa ASTM D790 Impact Nominal Value Unit Test Method Notched Izod Impact (23°C, 3.18 mm) 800 J/m ASTM D256 Hardness Nominal Value Unit Test Method Rockwell Hardness (M-Scale) 80 ASTM D648 Rockwell Hardness (M-Scale) 80 ASTM D785 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 141 °C ASTM D648 1.8 MPa, Unannealed 152 °C ASTM D648 1.8 MPa, Unannealed 152 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volat Softening Temperature 16 kV/mm ASTM D257 <td< td=""><td>Melt Mass-Flow Rate (300°C/1.2 kg)</td><td>10</td><td>g/10 min</td><td>ASTM D1238</td></td<>	Melt Mass-Flow Rate (300°C/1.2 kg)	10	g/10 min	ASTM D1238	
Mechanical Nominal Value Unit Test Method Tensile Strength (23°C) 69.6 MPa ASTM D638 Tensile Elongation (Break, 23°C) 120 % ASTM D638 Flexural Modulus (23°C) 2340 MPa ASTM D790 Flexural Strength (23°C) 93.1 MPa ASTM D790 Impact Nominal Value Unit Test Method Notched Izod Impact (23°C, 3.18 mm) 800 J/m ASTM D56 Hardness Nominal Value Unit Test Method Rockwell Hardness (M-Scale) 80 ASTM D785 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 141 °C 0.45 MPa, Unannealed 141 °C 1.8 MPa, Unannealed 132 °C Vicat Softening Temperature Under Load 154 °C ASTM D648 1.8 MPa, Unannealed 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity <t< td=""><td>Molding Shrinkage - Flow</td><td>0.50 to 0.70</td><td>%</td><td>ASTM D955</td></t<>	Molding Shrinkage - Flow	0.50 to 0.70	%	ASTM D955	
Tensile Strength (23°C) 69.6 MPa ASTM D638 Tensile Elongation (Break, 23°C) 120 % ASTM D638 Flexural Modulus (23°C) 2340 MPa ASTM D790 Flexural Strength (23°C) 93.1 MPa ASTM D790 Impact Nominal Value Unit Test Method Nothed Izod Impact (23°C, 3.18 mm) 80 Jm ASTM D256 Hardness Nominal Value Unit Test Method Rockwell Hardness (M-Scale) Nominal Value Unit Test Method Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 141 °C 0.45 MPa, Unannealed 141 °C Vicat Softening Temperature 152 °C ASTM D648 1.8 MPa, Unannealed 132 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm-cm ASTM D495 Flammability Nominal Value Unit Test Method <td>Water Absorption (24 hr)</td> <td>0.15</td> <td>%</td> <td>ASTM D570</td>	Water Absorption (24 hr)	0.15	%	ASTM D570	
Tensile Elongation (Break, 23°C)	Mechanical	Nominal Value	Unit	Test Method	
Flexural Modulus (23°C)	Tensile Strength (23°C)	69.6	MPa	ASTM D638	
Flexural Strength (23°C) 93.1 MPa	Tensile Elongation (Break, 23°C)	120	%	ASTM D638	
Impact Nominal Value Unit Test Method Notched Izod Impact (23°C, 3.18 mm) 800 J/m ASTM D256 Hardness Nominal Value Unit Test Method Rockwell Hardness (M-Scale) 80 ASTM D785 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load ASTM D648 ASTM D648 1.8 MPa, Unannealed 132 °C Vicat Softening Temperature 154 °C ASTM D648 1.8 MPa, Unannealed 132 °C ASTM D648 Vicat Softening Temperature 154 °C ASTM D55 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm-cm ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm	Flexural Modulus (23°C)	2340	MPa	ASTM D790	
Notched Izod Impact (23°C, 3.18 mm) 800 J/m ASTM D256 Hardness Nominal Value Unit Test Method Rockwell Hardness (M-Scale) 80 ASTM D785 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 0.45 MPa, Unannealed 141 °C ASTM D648 1.8 MPa, Unannealed 132 °C ASTM D648 1.8 MPa, Unannealed 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 4.0E+16 ohm·cm ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Flexural Strength (23°C)	93.1	MPa	ASTM D790	
Hardness Nominal Value Unit Test Method Rockwell Hardness (M-Scale) 80 ASTM D785 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 0.45 MPa, Unannealed 141 °C ASTM D648 Deflection Temperature Under Load 1.8 MPa, Unannealed 132 °C ASTM D648 Vicat Softening Temperature 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Impact	Nominal Value	Unit	Test Method	
Rockwell Hardness (M-Scale) 80 ASTM D785 Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 141 °C ASTM D648 0.45 MPa, Unannealed 141 °C ASTM D648 1.8 MPa, Unannealed 132 °C ASTM D1525 Vicat Softening Temperature 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Notched Izod Impact (23°C, 3.18 mm)	800	J/m	ASTM D256	
Thermal Nominal Value Unit Test Method Deflection Temperature Under Load 0.45 MPa, Unannealed 141 °C Deflection Temperature Under Load 132 °C 1.8 MPa, Unannealed 132 °C Vicat Softening Temperature 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Hardness	Nominal Value	Unit	Test Method	
Deflection Temperature Under Load ASTM D648 0.45 MPa, Unannealed 141 °C Deflection Temperature Under Load ASTM D648 1.8 MPa, Unannealed 132 °C Vicat Softening Temperature 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Rockwell Hardness (M-Scale)	80		ASTM D785	
0.45 MPa, Unannealed 141 °C Deflection Temperature Under Load ASTM D648 1.8 MPa, Unannealed 132 °C Vicat Softening Temperature 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Thermal	Nominal Value	Unit	Test Method	
Deflection Temperature Under Load ASTM D648 1.8 MPa, Unannealed 132 °C Vicat Softening Temperature 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Deflection Temperature Under Load			ASTM D648	
1.8 MPa, Unannealed 132 °C Vicat Softening Temperature 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm-cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	0.45 MPa, Unannealed	141	°C		
Vicat Softening Temperature 154 °C ASTM D1525 Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Deflection Temperature Under Load			ASTM D648	
Electrical Nominal Value Unit Test Method Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	1.8 MPa, Unannealed	132	°C		
Volume Resistivity 4.0E+16 ohm·cm ASTM D257 Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Vicat Softening Temperature	154	°C	ASTM D1525	
Dielectric Strength (3.18 mm, in Air) 16 kV/mm ASTM D149 Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Electrical	Nominal Value	Unit	Test Method	
Arc Resistance 120 sec ASTM D495 Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Volume Resistivity	4.0E+16	ohm·cm	ASTM D257	
Flammability Nominal Value Unit Test Method Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Dielectric Strength (3.18 mm, in Air)	16	kV/mm	ASTM D149	
Flame Rating (0.508 mm) V-2 UL 94 Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Arc Resistance	120	sec	ASTM D495	
Optical Nominal Value Unit Test Method Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Flammability	Nominal Value	Unit	Test Method	
Refractive Index 1.585 ASTM D542 Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Flame Rating (0.508 mm)	V-2		UL 94	
Transmittance (3180 μm) 89.0 to 91.0 % ASTM D1003	Optical	Nominal Value	Unit	Test Method	
	Refractive Index	1.585		ASTM D542	
Haze (3180 μm) 0.50 to 0.80 % ASTM D1003	Transmittance (3180 µm)	89.0 to 91.0	%	ASTM D1003	
	Haze (3180 µm)	0.50 to 0.80	%	ASTM D1003	

Hylex® P1010L

Ravago Manufacturing Americas, LLC - Polycarbonate

Processing Information				
Injection	Nominal Value	Unit		
Drying Temperature	121	°C		
Drying Time	3.0 to 4.0	hr		
Drying Time, Maximum	12	hr		
Dew Point	< -28.9	°C		
Suggested Max Moisture	0.020	%		
Suggested Shot Size	40 to 60	%		
Rear Temperature	271 to 282	°C		
Middle Temperature	277 to 288	°C		
Front Temperature	282 to 299	°C		
Nozzle Temperature	277 to 299	°C		
Processing (Melt) Temp	288 to 316	°C		
Mold Temperature	76.7 to 93.3	°C		
Injection Pressure	6.89 to 12.4	MPa		
Holding Pressure	4.83 to 8.27	MPa		
Back Pressure	0.483 to 1.03	MPa		
Screw Speed	40 to 70	rpm		

Pressures given are in the hydraulic circuit.

Drying time should not exceed 12 hours to avoid excessive heat history.

Drying time is 5 to 6 hours with regrind.

Air throughout minimum of 1 CFM/lb resin/hr.

Notes

¹ Typical properties: these are not to be construed as specifications.