

Product Comparison

Technical Data

Product Description				
CYCOLOY™ FR Resin CY6120 - Asia	Non-chlorinated and non-brominated flame retardant PC/ABS featuring good flow and impact properties. UL-94 V0 listed at 1.2mm intended for various thin wall applications.			
EMERGE™ PC/ABS 7700	EMERGE™ PC/ABS 7700 Advanced Resin is an ignition-resistant PC/ABS blend that contains no chlorinated or brominated flame retardant additives. It has superior processability for injection molding applications. This grade has excellent aesthetics, is UV stabilized and is available in custom colors. Main Characteristics: • RoHS Compliant • UV stabilized Applications: • Electrical housings • Consumer Electronics • Information technology equipment			
Bayblend® FR3002	(PC+ABS)-Blend; flame retardant; Vicat/B 120 temperature = 99°C; UL recognition 94 V-0 (1.0 mm); glow wire temperature (GWFI): 960°C at 2.0 mm; for notebooks and thinwall applications			
General	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1
Manufacturer / Supplier	• SABIC	• Trinseo	• Covestro - Polycarbonates	• Polymer Resources Ltd.
Generic Symbol	• PC+ABS	• PC+ABS	• PC+ABS	• PC+ABS
Additive	--	• UV Stabilizer	• Flame Retardant	• Flame Retardant
Features	--	• Bromine Free • Chlorine Free • Flame Retardant • Good Processability • High Impact Resistance • Ignition Resistant • Pleasing Surface Appearance • UV Stabilized	• Flame Retardant	• Bromine Free • Chlorine Free • Flame Retardant • Good Flow • High Flow • High Impact Resistance • Self Extinguishing

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General	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1
Uses	- Automotive Exterior Parts - Electrical Parts - Electrical/Electronic Applications - Electronic Displays - Lighting Applications - Medical/Healthcare Applications - Military/Defense Applications	- Business Equipment - Electrical Housing - Electrical/Electronic Applications - Housings	Thin-walled Parts	--
RoHS Compliance	--	• RoHS Compliant	• RoHS Compliant	• RoHS Compliant
UL File Number	--	--	--	• E113219
Appearance	--	• Colors Available	--	--
Forms	--	• Pellets	--	• Pellets
Processing Method	--	• Injection Molding	--	• Injection Molding

Physical	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Density / Specific Gravity						
--	1.19	1.17	--	1.18	g/cm³	ASTM D792
--	--	1.17	--	--	g/cm³	ISO 1183
23°C	--	--	1.18	--	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)						
230°C/3.8 kg	--	11	--	--	g/10 min	ASTM D1238 ISO 1133
240°C/5.0 kg	--	20	--	--	g/10 min	ASTM D1238 ISO 1133
250°C/5.0 kg	--	--	--	25 to 50	g/10 min	ASTM D1238
260°C/2.16 kg	18	13	--	--	g/10 min	ASTM D1238
260°C/2.16 kg	--	13	--	--	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR)						ISO 1133
240°C/5.0 kg	--	--	19	--	cm³/10min	
260°C/2.16 kg	16	--	--	--	cm³/10min	

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Physical	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Molding Shrinkage						
Flow	--	0.40 to 0.60	--	--	%	ASTM D955 ISO 294-4
Flow : 3.18 mm	--	--	--	0.50 to 0.70	%	ASTM D955
Across Flow : 240°C, 3.00 mm ²	--	--	0.50 to 0.70	--	%	ISO 2577
Flow : 240°C, 3.00 mm ²	--	--	0.50 to 0.70	--	%	ISO 2577
Flow : 3.20 mm	0.30 to 0.50	--	--	--	%	Internal Method
Water Absorption						ISO 62
Saturation, 23°C	--	--	0.50	--	%	
Equilibrium, 23°C, 50% RH	--	--	0.20	--	%	
Mechanical	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Tensile Modulus						
-- ³	--	2620	--	--	MPa	ASTM D638
-- ⁴	2960	--	--	--	MPa	ASTM D638
--	2600	2500	--	--	MPa	ISO 527-1/1
23°C	--	--	2700	--	MPa	ISO 527-1/1
Tensile Strength						
Yield ⁵	62.0	--	--	--	MPa	ASTM D638
Yield ⁴	--	60.0	--	--	MPa	ASTM D638
Yield, 3.18 mm	--	--	--	62.1	MPa	ASTM D638
Yield	58.0	55.0	--	--	MPa	ISO 527-2/50
Yield, 23°C	--	--	60.0	--	MPa	ISO 527-2/50
Break ⁵	59.0	--	--	--	MPa	ASTM D638
Break ⁴	--	48.3	--	--	MPa	ASTM D638
Break, 3.18 mm	--	--	--	56.5	MPa	ASTM D638
Break	49.0	45.0	--	--	MPa	ISO 527-2/50
Break, 23°C	--	--	50.0	--	MPa	ISO 527-2/50

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Mechanical	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Tensile Elongation						
Yield ⁵	4.0	--	--	--	%	ASTM D638
Yield ⁴	--	3.8	--	--	%	ASTM D638
Yield	4.0	3.8	--	--	%	ISO 527-2/50
Yield, 23°C	--	--	4.0	--	%	ISO 527-2/50
Break ⁵	100	--	--	--	%	ASTM D638
Break ⁴	--	65	--	--	%	ASTM D638
Break	100	43	--	--	%	ISO 527-2/50
Break, 23°C	--	--	> 50	--	%	ISO 527-2/50
Flexural Modulus						
50.0 mm Span ⁶	2820	--	--	--	MPa	ASTM D790
--	--	2690	--	--	MPa	ASTM D790
3.18 mm	--	--	--	2620	MPa	ASTM D790
-- ⁷	2500	--	--	--	MPa	ISO 178
23°C ⁷	--	--	2600	--	MPa	ISO 178
Flexural Strength						
--	--	96.5	--	--	MPa	ASTM D790
3.18 mm	--	--	--	93.1	MPa	ASTM D790
-- ^{7, 8}	93.0	--	--	--	MPa	ISO 178
23°C ⁷	--	--	98.0	--	MPa	ISO 178
Yield, 50.0 mm Span ⁶	102	--	--	--	MPa	ASTM D790
Impact	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Charpy Notched Impact Strength						ISO 179/1eA
-30°C	--	15	--	--	kJ/m²	
23°C	--	40	--	--	kJ/m²	

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Impact	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Notched Izod Impact						
-18°C	--	200	--	--	J/m	ASTM D256
-7°C	--	440	--	--	J/m	ASTM D256
23°C, 3.18 mm	--	--	--	640	J/m	ASTM D256
23°C	590	480	--	--	J/m	ASTM D256
-30°C	--	14	--	--	kJ/m²	ISO 180/1A
23°C	--	--	30	--	kJ/m²	ISO 180/A
23°C ⁹	40	--	--	--	kJ/m²	ISO 180/1A
23°C	--	50	--	--	kJ/m²	ISO 180/1A
Unnotched Izod Impact Strength (23°C)	--	--	No Break	--		ISO 180
Instrumented Dart Impact						ASTM D3763
23°C, Total Energy	54.0	--	--	--	J	
Gardner Impact (3.18 mm)	--	--	--	36.2	J	ASTM D3029
Hardness	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Rockwell Hardness (R-Scale)	--	120	--	--		ASTM D785
Thermal	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Deflection Temperature Under Load						
0.45 MPa, Unannealed	--	90.6	--	--	°C	ASTM D648
0.45 MPa, Unannealed, 3.18 mm	--	--	--	90.6	°C	ASTM D648
0.45 MPa, Unannealed, 3.20 mm	93.0	--	--	--	°C	ASTM D648
0.45 MPa, Unannealed	--	88.0	92.0	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	--	79.4	--	--	°C	ASTM D648
1.8 MPa, Unannealed, 3.18 mm	--	--	--	85.0	°C	ASTM D648
1.8 MPa, Unannealed, 3.20 mm	85.0	--	--	--	°C	ASTM D648
1.8 MPa, Unannealed	--	77.0	84.0	--	°C	ISO 75-2/A
Vicat Softening Temperature						
--	96.0	--	--	--	°C	ASTM D1525 ¹⁰
--	--	104	--	--	°C	ASTM D1525 ¹¹ ISO 306/A120 ¹¹
--	98.0	--	99.0	--	°C	ISO 306/B120
--	95.0	94.0	97.0	--	°C	ISO 306/B50

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Thermal	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
CLTE						
Flow : -40 to 40°C	--	6.8E-5	--	--	cm/cm/°C	ASTM D696
Flow : -40 to 40°C	7.4E-5	--	--	--	cm/cm/°C	ASTM E831
Flow : 23 to 55°C	--	--	7.6E-5	--	cm/cm/°C	ISO 11359-2
Flow : 23 to 80°C	8.0E-5	--	--	--	cm/cm/°C	ISO 11359-2
Transverse : -40 to 40°C	8.5E-5	--	--	--	cm/cm/°C	ASTM E831
Transverse : 23 to 55°C	--	--	8.0E-5	--	cm/cm/°C	ISO 11359-2
Transverse : 23 to 80°C	8.0E-5	--	--	--	cm/cm/°C	ISO 11359-2
RTI Elec						UL 746B
--	60.0	--	--	--	°C	
1.5 mm	--	--	--	60.0	°C	
2.5 mm	--	--	--	60.0	°C	
3.0 mm	--	--	--	60.0	°C	
RTI Imp						UL 746B
--	60.0	--	--	--	°C	
1.5 mm	--	--	--	60.0	°C	
2.5 mm	--	--	--	60.0	°C	
3.0 mm	--	--	--	60.0	°C	
RTI Str						UL 746B
--	60.0	--	--	--	°C	
1.5 mm	--	--	--	60.0	°C	
2.5 mm	--	--	--	60.0	°C	
3.0 mm	--	--	--	60.0	°C	
Electrical	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Surface Resistivity	> 1.0E+15	5.2E+15	1.0E+16	--	ohms	IEC 60093
Volume Resistivity						IEC 60093
--	> 1.0E+15	1.0E+18	--	--	ohms·cm	
23°C	--	--	1.0E+16	--	ohms·cm	
Electric Strength						IEC 60243-1
1.60 mm, in Oil	--	26	--	--	kV/mm	
3.20 mm, in Oil	17	18	--	--	kV/mm	
23°C, 1.00 mm	--	--	35	--	kV/mm	

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+135-3858-6433 (GuangDong)
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+852-6957-5415 (HongKong)

Electrical	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Relative Permittivity						IEC 60250
50 Hz	2.70	--	--	--		
60 Hz	2.70	--	--	--		
100 Hz	--	2.86	--	--		
1 MHz	2.60	2.80	--	--		
23°C, 100 Hz	--	--	3.20	--		
23°C, 1 MHz	--	--	3.10	--		
Dissipation Factor						IEC 60250
50 Hz	4.1E-3	--	--	--		
60 Hz	4.1E-3	--	--	--		
100 Hz	--	4.0E-3	--	--		
1 MHz	8.6E-3	7.0E-3	--	--		
23°C, 100 Hz	--	--	5.0E-3	--		
23°C, 1 MHz	--	--	6.0E-3	--		
Comparative Tracking Index (CTI) (1.50 mm)	--	--	--	PLC 0		UL 746A
Comparative Tracking Index (Solution A)	--	--	350	--	V	IEC 60112
High Amp Arc Ignition (HAI)						UL 746A
1.5 mm	--	--	--	PLC 0		
2.5 mm	--	--	--	PLC 0		
3.0 mm	--	--	--	PLC 0		
Hot-wire Ignition (HWI)						UL 746A
1.5 mm	--	--	--	PLC 3		
2.5 mm	--	--	--	PLC 3		
3.0 mm	--	--	--	PLC 1		

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Flammability	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
Flame Rating						UL 94
1.0 mm	--	--	V-0	--		
1.2 mm	V-0	--	--	--		
1.5 mm ¹²	--	V-0	--	--		
1.5 mm	--	--	--	V-0		
3.0 mm	--	--	--	• V-0 • 5VA		
1.8 mm	--	--	5VB	--		
2.0 mm ¹²	--	5VB	--	--		
2.5 mm ¹²	--	5VA	--	--		
Glow Wire Flammability Index ¹²						IEC 60695-2-12
1.5 mm	--	925	--	--	°C	
2.0 mm	--	925	--	--	°C	
2.5 mm	--	925	--	--	°C	
3.0 mm	--	950	--	--	°C	
Glow Wire Ignition Temperature ¹²						IEC 60695-2-13
1.5 mm	--	700	--	--	°C	
2.0 mm	--	700	--	--	°C	
3.0 mm	--	700	--	--	°C	
Oxygen Index ¹²	--	28	--	--	%	ASTM D2863 ISO 4589-2
Additional Information	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	Test Method
ISO Shortname	--	--	PC+ABS-FR(40)	--		
Melt Viscosity ¹³ (260°C)	--	--	190	--	Pa·s	ISO 11443-A
Injection	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit	
Drying Temperature						
--	80 to 90	80 to 90	--	77 to 82	°C	
Dry Air Dryer	--	--	80	--	°C	
Drying Time						
--	3.0 to 4.0	3.0 to 4.0	--	3.0 to 4.0	hr	
Dry Air Dryer	--	--	4.0	--	hr	

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Injection	CYCOLOY™ FR Resin CY6120 - Asia	EMERGE™ PC/ABS 7700	Bayblend® FR3002	PRL PC/ABS-FR1	Unit
Drying Time, Maximum	--	--	--	8.0	hr
Suggested Max Moisture	0.040	--	< 0.020	--	%
Suggested Shot Size	30 to 80	--	30 to 70	--	%
Rear Temperature	220 to 255	--	220 to 230	221 to 254	°C
Middle Temperature	220 to 265	--	225 to 235	232 to 266	°C
Front Temperature	245 to 275	--	230 to 240	243 to 277	°C
Nozzle Temperature	245 to 275	--	255 to 265	--	°C
Processing (Melt) Temp	245 to 275	235 to 275	240 to 270	246 to 274	°C
Mold Temperature	60 to 80	60 to 90	60 to 80	49 to 82	°C
Back Pressure	0.300 to 0.700	--	5.00 to 15.0	--	MPa
Screw Speed	40 to 70	--	--	--	rpm
Vent Depth	0.038 to 0.076	--	0.025 to 0.075	--	mm
Injection Notes					
CYCOLOY™ FR Resin CY6120 - Asia	Drying Time (Cumulative): 8 hr				
Bayblend® FR3002	Peripheral Screw Speed: 0.05 - 0.2 m/s Hold Pressure (% of Injection Pressure): 50 - 75% Standard Melt Temperature: 260°C				