

CYCOLOY™ FR RESINS C3650

REGION AMERICAS

DESCRIPTION

CYCOLOY C3650 Polycarbonate/Acrylonitrile Butadiene Styrene (PC/ABS) resin is a grade that can be injection molded or extruded into sheet for secondary thermoforming operations. This non-chlorinated, non-brominated flame retardant PC/ABS has a UL V0 & 5VB flame rating. CYCOLOY C3650 resin is a general purpose resin that is an excellent candidate for a wide variety of applications including cable channels and is verified non-halogen by the DIN VDE 0472/815 standard.

TYPICAL PROPERTY VALUES

Revision 20191022

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	64	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	51	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	4.9	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	35	%	ASTM D638
Tensile Modulus, 50 mm/min	2860	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	101	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2680	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	55	MPa	ISO 527
Tensile Stress, break, 5 mm/min	50	MPa	ISO 527
Tensile Stress, yield, 50 mm/min	65	MPa	ISO 527
Tensile Stress, break, 50 mm/min	55	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	3	%	ISO 527
Tensile Strain, break, 5 mm/min	55	%	ISO 527
Tensile Strain, yield, 50 mm/min	4.5	%	ISO 527
Tensile Strain, break, 50 mm/min	>50	%	ISO 527
Tensile Modulus, 1 mm/min	2600	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	100	MPa	ISO 178
Flexural Modulus, 2 mm/min	2700	MPa	ISO 178
Ball Indentation Hardness, H358/30	113	MPa	ISO 2039-1
Hardness, Rockwell R	124	-	ISO 2039-2
IMPACT			
Izod Impact, notched, 23°C	694	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	64	J	ASTM D3763
Izod Impact, notched 80°10°4 +23°C	45	kJ/m ²	ISO 180/1A
Izod Impact, notched 80°10°4 0°C	15	kJ/m ²	ISO 180/1A
Izod Impact, notched 80°10°4 -30°C	13	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm	48	kJ/m ²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80°10°4 sp=62mm	13	kJ/m ²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	110	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	100	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	88	°C	ASTM D648
CTE, -40°C to 40°C, flow	7.2E-05	1/°C	ASTM E831



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -40°C to 40°C, xflow	7.2E-05	1/°C	ASTM E831
Thermal Conductivity	0.2	W/m·°C	ISO 8302
CTE, 23°C to 60°C, flow	8.E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	8.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	108	°C	ISO 306
Vicat Softening Temp, Rate B/120	110	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	102	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	91	°C	ISO 75/Ae
Relative Temp Index, Elec	60	°C	UL 746B
Relative Temp Index, Mech w/impact	60	°C	UL 746B
Relative Temp Index, Mech w/o impact	60	°C	UL 746B
PHYSICAL			
Specific Gravity	1.2	-	ASTM D792
Water Absorption, (23°C/ saturated)	0.6	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm	0.4 – 0.6	%	SABIC method
Melt Flow Rate, 260°C/5.0 kgf	8.5	g/10 min	ASTM D1238
Density	1.18	g/cm³	ISO 1183
Melt Volume Rate, MVR at 260°C/5.0 kg	8	cm³/10 min	ISO 1133
ELECTRICAL			
Dissipation Factor, 50/60 Hz	0.006	-	ASTM D150
Volume Resistivity	>1.E+15	Ω.cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ω	IEC 60093
Dielectric Strength, in oil, 0.8 mm	35	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	25	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	17	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.7	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.004	-	IEC 60250
Dissipation Factor, 1 MHz	0.006	-	IEC 60250
Comparative Tracking Index	600	V	IEC 60112
Relative Permittivity, 50/60 Hz	2.8	-	IEC 60250
FLAME CHARACTERISTICS			
UL Yellow Card Link	E121562-221036	-	-
UL Recognized, 94V-0 Flame Class Rating	1.5	mm	UL 94
UL Recognized, 94-5VB Flame Class Rating	2.5	mm	UL 94
Oxygen Index (LOI)	37	%	ISO 4589
INJECTION MOLDING			
Drying Temperature	80 – 90	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.04	%	
Melt Temperature	245 – 275	°C	
Nozzle Temperature	245 – 275	°C	
Front - Zone 3 Temperature	245 – 275	°C	
Middle - Zone 2 Temperature	220 – 265	°C	
Rear - Zone 1 Temperature	220 – 255	°C	



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Mold Temperature	60 – 80	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	40 – 70	rpm	
Shot to Cylinder Size	30 – 80	%	
Vent Depth	0.038 – 0.076	mm	
EXTRUSION BLOW MOLDING			
Drying Temperature	80 – 90	°C	
Drying Time	2 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0 – 0.02	%	
Melt Temperature (Parison)	225 – 250	°C	
Barrel - Zone 1 Temperature	205 – 230	°C	
Barrel - Zone 2 Temperature	215 – 245	°C	
Barrel - Zone 3 Temperature	215 – 245	°C	
Barrel - Zone 4 Temperature	220 – 250	°C	
Adapter - Zone 5 Temperature	225 – 250	°C	
Head - Zone 6 - Top Temperature	225 – 250	°C	
Head - Zone 7 - Bottom Temperature	225 – 250	°C	
Mold Temperature	65 – 90	°C	
Die Temperature	240 – 250	°C	
PROFILE EXTRUSION			
Drying Temperature	80 – 90	°C	
Drying Time	2 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Minimum Moisture Content	0 – 0.02	%	
Melt Temperature	225 – 270	°C	
Barrel - Zone 1 Temperature	205 – 250	°C	
Barrel - Zone 2 Temperature	215 – 260	°C	
Barrel - Zone 3 Temperature	215 – 260	°C	
Barrel - Zone 4 Temperature	225 – 270	°C	
Adapter Temperature	225 – 270	°C	
Die Temperature	225 – 270	°C	
Calibrator Temperature	60 – 80	°C	

DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.

