

CYCOLOYTM FR RESINS C2950HF

REGION AMERICAS

DESCRIPTION

CYCOLOY C2950HF Polycarbonate/Acrylonitrile Butadiene Styrene (PC/ABS) resin is a high heat grade that can be injection molded. This non-chlorinated, non-brominated flame retardant high heat PC/ABS wih enhanced processability has a UL VO & 5VA/B flame rating. CYCOLOY C2950HF resin is an excellent candidate for a wide variety of applications including appliances, lighting and electrical.

TYPICAL PROPERTY VALUES

Revision 20191022

MECHANICAL Fremile Stress, yld. Type 1, 50 mm/min 64 MPa ASTM D638 Fensile Strain, Jrd. Type 1, 50 mm/min 5 % ASTM D638 Fensile Strain, Jrd. Type 1, 50 mm/min 40 % ASTM D638 Fensile Strain, Jrd. Type 1, 50 mm/min, 100 mm span 2580 MPa ASTM D730 Fleural Modulus, 2.6 mm/min, 100 mm span 2580 MPa ASTM D730 Harding Modulus, 2.6 mm/min, 100 mm span 2580 MPa ASTM D730 Harding Modulus, 2.6 mm/min, 100 mm span 2580 MPa ASTM D730 Harding Modulus, 2.6 mm/min, 100 mm span 2580 MPa ASTM D730 Harding Modulus, 2.6 mm/min, 100 mm span 2580 MPa ASTM D730 Harding Modulus, 2.6 mm/min, 100 mm span 2580 MPa ASTM D730 Harding Modulus, 2.6 mm/min, 100 mm span 2580 MPa ASTM D730 Harding Modulus, 2.6 mm/min, 100 mm span 2580 MPa ASTM D730 HERCHALL 453 Jl ASTM D730 HERCHALL 250 MSTM D336 MSTM D536 HERC				
feesile Stress, yld, Type 1, 50 mm/min 64 MPa ASTM D638 feesile Strain, brk, Type 1, 50 mm/min 5 4 ASTM D638 feesile Strain, brk, Type 1, 50 mm/min 40 8 ASTM D638 feesile Strain, brk, Type 1, 50 mm/min, 100 mm span 96 MPa ASTM D790 feesile Strain, brk, Type 1, 50 mm/min, 100 mm span 2580 MPa ASTM D790 feesile Strain, brk, Type 1, 50 mm/min, 100 mm span 2580 MPa ASTM D790 feesile Strain, brk, Type 1, 50 mm/min, 100 mm span 96 MPa ASTM D790 feesile Strain, brk, Type 1, 50 mm/min, 100 mm span 96 MPa ASTM D790 feesile Strain, brk, Type 1, 50 mm/min, 100 mm span 96 MPa ASTM D790 feesile Strain, Min, 100 mm span 96 MPa ASTM D790 death Grand Strain	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Fernalic Strain, Joh. Type I, 50 mm/min 5 % ASTM D638 Fernalic Strain, Joh. Type I, 50 mm/min 40 % ASTM D638 Flexural Modulus, 2,6 mm/min, 100 mm span 96 MPa ASTM D790 Flexural Modulus, 2,6 mm/min, 100 mm span 2580 MPa ASTM D790 Hardness, Rockwell R 121 - ASTM D785 MPACT 2 ASTM D256 ASTM D785 MPACT 35 J/m ASTM D256 STEMBAL 4 53 J/m ASTM D256 MPACT 2 J/m ASTM D363 MPACT W J/m ASTM D256 MPACT 3 J/m ASTM D363 MPACT 4 C ASTM D364 MPACT ASTM D484 C ASTM D484 MPACT ASTM D484 C ASTM D484 MPACT ASTM D696 C ASTM D696 CTL, 2.0°C to 30°C, 4llow 7.2°C ASTM D696 C CTL, 2.0°C to 30°C, 4llow 2	MECHANICAL			
Fernal Strain, brix, Type I, 50 mm/min 40 % ASTM D638 Flexural Stress, yld, 2,6 mm/min, 100 mm span 96 MPa ASTM D790 Flexural Modulus, 2,6 mm/min, 100 mm span 2580 MPa ASTM D790 Hardness, Rockwell R 121 TW TW MARCT TW TW TW zod Impact, notched, 23°C 453 J/m ASTM D256 nstrumented Dart Impact Energy @ peak, 23°C 54 J ASTM D3763 THERMAL TW C ASTM D1525 HDT, 18,2 MPa, 3,2mm, unannealed 87 °C ASTM D648 HDT, 18,2 MPa, 3,2mm, unannealed 91 °C ASTM D648 HDT, 18,2 MPa, 3,2mm, unannealed 92 °C ASTM D648 HDT, 18,2 MPa, 3,2mm, unannealed 91 °C ASTM D648 HDT, 18,2 MPa, 3,2 mm, unannealed 92 °C ASTM D648 HDT, 18,2 MPa, 3,2 mm, unannealed 92 °C ASTM D648 HDT, 18,2 MPa, 3,2 mm, unannealed 92 °C U.746B HDT, 18,2 MPa, 2,2 mm<	Tensile Stress, yld, Type I, 50 mm/min	64	MPa	ASTM D638
File cural Stress, yld, 2.6 mm/min, 100 mm span 96	Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D638
Part	Tensile Strain, brk, Type I, 50 mm/min	40	%	ASTM D638
Hardness, Rockwell R 121	Flexural Stress, yld, 2.6 mm/min, 100 mm span	96	MPa	ASTM D790
MPACT ACT MIT DESCRIPTION OF THE MEDICAL PROPERTY OF THE MEDIC	Flexural Modulus, 2.6 mm/min, 100 mm span	2580	MPa	ASTM D790
cold impact, notched, 23°C 453 J/m ASTM D256 instrumented Dart impact Energy@peak, 23°C 54 J ASTM D3763 IFLERMAL ITLE ASMPa, 3.2 mm, unannealed 112 °C ASTM D1525 ADT, 1.82 MPa, 3.2 mm, unannealed 101 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 101 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 101 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 7.2E-05 1/°C ASTM D696 LTE, 30°Ct o 30°C, filow 7.2E-05 1/°C ASTM D696 LTE, 30°Ct o 30°C, filow 7.2E-05 1/°C ASTM D696 LTE, 30°Ct o 30°C, filow 7.2E-05 1/°C ASTM D696 LTE, 30°Ct o 30°C, filow 7.2E-05 Wilm C UL7468 LEE CTE, 30°Ct o 30°C, filow 8.5 C UL746B C LEE CTE, 30°Ct o 30°C, salurated) 1.18 - ASTM D570 Value AS	Hardness, Rockwell R	121	-	ASTM D785
######################################	IMPACT			
The Firm The Firm	Izod Impact, notched, 23°C	453	J/m	ASTM D256
Acta Softening Temp, Rate B/50 112 °C ASTM D6125 HDT, 1.82 MPa, 3.2mm, unannealed 87 °C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 101 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 95 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 95 °C ASTM D696 CET, 30°C to 30°C, flow 7.2E-05 1/°C ASTM D696 CET, 30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CET, 30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CET, 30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CET, 30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CET, 30°C to 30°C, xflow 8.5 °C U1 746B Relative Temp Index, Mech w/joinpact 8.5 °C U1 746B Relative Temp Index, Mech w/joinpact 1.8 °C ASTM D792 Water Absorption, (23°C/24hrs) 0.1 % ASTM D570 Water Absorption, (23°C/24hrs) 0.4 0.6 % ASIM D570	Instrumented Dart Impact Energy @ peak, 23°C	54	J	ASTM D3763
### ### ### ### ### ### ### ### ### ##	THERMAL			
HDT, 0.45 MPa, 6.4 mm, unannealed 101 °C ASTM D648 HDT, 1.82 MPa, 6.4 mm, unannealed 95 °C ASTM D648 ETE, -30°C to 30°C, flow 7.2E-05 1/°C ASTM D696 CTE, -30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CHE TE, -30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CHE TE, -30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CHE TE, -30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CHE TE, -30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CHE TE, -30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CHE TE, -30°C to 30°C, xflow 8.5 °C UL 7468 Relative Temp Index, Mech w/impact 8.5 °C UL 7468 Relative Temp Index, Mech w/impact 8.5 °C UL 7468 Relative Temp Index, Mech w/impact 1.18 °C ASTM D792 Water Absorption, (23°C/24hrs) 0.1 % ASTM D792 Water Absorption, (23°C/24hrs) 0.4 ° 0.6 % SABIC m	Vicat Softening Temp, Rate B/50	112	°C	ASTM D1525
Section Sec	HDT, 1.82 MPa, 3.2mm, unannealed	87	°C	ASTM D648
CTE, 30°C to 30°C, flow 7.2E-05 1/°C ASTM D696 CTE, 30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CTE, 30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CHARD CHARD CHARD CHECK 85 °C UL 746B Relative Temp Index, Mech w/impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 Serial Mechanic %C ASTM D792 Water Absorption, (23°C/24hrs) 0.1 % ASTM D570 ASTM D570 Water Absorption, (23°C/24hrs) 0.4 0.6 % ASIM D570 Water Absorption, (23°C/24hrs) 0.4 0.6 % ASIM D1238 Water Absorption, (23°C	HDT, 0.45 MPa, 6.4 mm, unannealed	101	°C	ASTM D648
CTE, 30°C to 30°C, xflow 7.2E-05 1/°C ASTM D696 CTHermal Conductivity 0.2 W/m°C ASTM C177 Relative Temp Index, Elec 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C WIT 746B Relative Temp Index, Mech w/o impact 1.18 °C ASTM D59 Polystop 9 ASTM D59 ASTM D59 Water Absorption, (23°C/24hrs) 0.4 9 ASTM D570 Wolld Shrinkage, flow, 3.2 mm 0.4-0.6 % SABIC method Wolld Flow Rate, 260°C/2.16 kgf 2.6E+17 0.cm ASTM D257	HDT, 1.82 MPa, 6.4 mm, unannealed	95	°C	ASTM D648
Internal Conductivity 0.2 W/m.°C ASTM C177 Relative Temp Index, Elec 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B PHYSICAL Variance Variance Variance ASTM D792 Nater Absorption, (23°C/24hrs) 0.1 % ASTM D570 Nater Absorption, (23°C/5aturated) 0.4 − 0.6 % ASTM D570 Volid Shrinkage, flow, 3.2 mm 0.4 − 0.6 % ASIM Cmethod Volid Shrinkage, xflow, 3.2 mm 0.4 − 0.6 g/10 min ASTM D1238 ELECTRICAL SAIM D257 Current Calcumptation ASTM D257 Volume Resistivity 1.6E+17 Ω.cm ASTM D257 Surface Resistivity 1.E+16 Ω ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 W//mm ASTM D149	CTE, -30°C to 30°C, flow	7.2E-05	1/°C	ASTM D696
Relative Temp Index, Elec 85 °C UL 746B Relative Temp Index, Mech w/impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B UL 746B <t< td=""><td>CTE, -30°C to 30°C, xflow</td><td>7.2E-05</td><td>1/°C</td><td>ASTM D696</td></t<>	CTE, -30°C to 30°C, xflow	7.2E-05	1/°C	ASTM D696
Relative Temp Index, Mech w/impact 85 °C UL 746B Relative Temp Index, Mech w/o impact 85 °C UL 746B CPHYSICAL Use effic Gravity 1.18 - ASTM D792 Nater Absorption, (23°C/24hrs) 0.1 % ASTM D570 Water Absorption, (23°C/Saturated) 0.4 % ASTM D570 Wold Shrinkage, flow, 3.2 mm 0.4 - 0.6 % SABIC method Wold Shrinkage, xflow, 3.2 mm 0.4 - 0.6 % SABIC method Well Flow Rate, 260°C/2.16 kgf 22 g/10 min ASTM D1238 SELECTRICAL Volume Resistivity 1.6E+17 \(\Omegaccond{2}\) \(\Omegaccond{2}\) \(\Omegaccond{2}\) ASTM D257 Surface Resistivity >1.E+16 \(\Omegaccond{2}\) \(\Omegaccond{2}\) ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 W//mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Thermal Conductivity	0.2	W/m-°C	ASTM C177
Relative Temp Index, Mech w/o impact 85 °C UL 746B CPHYSICAL Specific Gravity 1.18 - ASTM D792 Water Absorption, (23°C/24hrs) 0.1 % ASTM D570 Water Absorption, (23°C/Saturated) 0.4 % ASTM D570 Wold Shrinkage, flow, 3.2 mm 0.4 – 0.6 % SABIC method Wold Shrinkage, xflow, 3.2 mm 0.4 – 0.6 % SABIC method Welt Flow Rate, 260°C/2.16 kgf 22 g/10 min ASTM D1238 ELECTRICAL Volume Resistivity 1.6E+17 Ω.cm ASTM D257 Surface Resistivity 24.3 kV/mm ASTM D149 Celectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D150	Relative Temp Index, Elec	85	°C	UL 746B
PHYSICAL Specific Gravity 1.18 0.1 8. ASTM D792 Nater Absorption, (23°C/24hrs) 0.1 8. ASTM D570 Nater Absorption, (23°C/Saturated) 0.4 0.4 0.4 0.6 Nold Shrinkage, xflow, 3.2 mm 0.4-0.6 0.4-0.6 0.4 0.7 0.7 0.7 0.7 0.7 0.7 0.7	Relative Temp Index, Mech w/impact	85	°C	UL 746B
Specific Gravity 1.18 - ASTM D792 Water Absorption, (23°C/24hrs) 0.1 % ASTM D570 Water Absorption, (23°C/Saturated) 0.4 % ASTM D570 Wold Shrinkage, flow, 3.2 mm 0.4 − 0.6 % SABIC method Wold Shrinkage, xflow, 3.2 mm 0.4 − 0.6 % SABIC method Welt Flow Rate, 260°C/2.16 kgf 22 g/10 min ASTM D1238 ELECTRICAL O.cm ASTM D257 Surface Resistivity >1.6E+17 Ω.cm ASTM D257 Surface Resistivity >1.E+16 Ω ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 W/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Relative Temp Index, Mech w/o impact	85	°C	UL 746B
Nater Absorption, (23°C/24hrs) 0.1 % ASTM D570 Nater Absorption, (23°C/Saturated) 0.4 % ASTM D570 Mold Shrinkage, flow, 3.2 mm 0.4 – 0.6 % SABIC method Mold Shrinkage, xflow, 3.2 mm 0.4 – 0.6 % SABIC method Melt Flow Rate, 260°C/2.16 kgf 22 g/10 min ASTM D1238 ELECTRICAL O.cm ASTM D257 Surface Resistivity >1.6E+17 Ω cm ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	PHYSICAL			
Water Absorption, (23°C/Saturated) 0.4 % ASTM D570 Wold Shrinkage, flow, 3.2 mm 0.4 – 0.6 % SABIC method Wold Shrinkage, xflow, 3.2 mm 0.4 – 0.6 % SABIC method Welt Flow Rate, 260°C/2.16 kgf 22 g/10 min ASTM D1238 ELECTRICAL Common Method ASTM D257 Surface Resistivity 1.6E+17 Ω cm ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Specific Gravity	1.18	-	ASTM D792
Wold Shrinkage, flow, 3.2 mm 0.4 – 0.6 % SABIC method Wold Shrinkage, xflow, 3.2 mm 0.4 – 0.6 % SABIC method Welt Flow Rate, 260°C/2.16 kgf 22 g/10 min ASTM D1238 ELECTRICAL O.cm ASTM D257 Surface Resistivity >1.E+16 Ω ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Water Absorption, (23°C/24hrs)	0.1	%	ASTM D570
Wold Shrinkage, xflow, 3.2 mm 0.4 – 0.6 % SABIC method Welt Flow Rate, 260°C/2.16 kgf 22 g/10 min ASTM D1238 ELECTRICAL Columne Resistivity 1.6E+17 Ω.cm ASTM D257 Surface Resistivity >1.E+16 Ω ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Water Absorption, (23°C/Saturated)	0.4	%	ASTM D570
Welt Flow Rate, 260°C/2.16 kgf 22 g/10 min ASTM D1238 ELECTRICAL Volume Resistivity 1.6E+17 Ω.cm ASTM D257 Surface Resistivity >1.E+16 Ω ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Mold Shrinkage, flow, 3.2 mm	0.4 - 0.6	%	SABIC method
ELECTRICAL Volume Resistivity 1.6E+17 Ω.cm ASTM D257 Surface Resistivity >1.E+16 Ω ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Mold Shrinkage, xflow, 3.2 mm	0.4 - 0.6	%	SABIC method
Volume Resistivity 1.6E+17 Ω.cm ASTM D257 Surface Resistivity >1.E+16 Ω ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Melt Flow Rate, 260°C/2.16 kgf	22	g/10 min	ASTM D1238
Surface Resistivity >1.E+16 Ω ASTM D257 Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	ELECTRICAL			
Dielectric Strength, in oil, 3.2 mm 24.3 kV/mm ASTM D149 Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Volume Resistivity	1.6E+17	Ω.cm	ASTM D257
Relative Permittivity, 50/60 Hz 2.8 - ASTM D150	Surface Resistivity	>1.E+16	Ω	ASTM D257
	Dielectric Strength, in oil, 3.2 mm	24.3	kV/mm	ASTM D149
Relative Permittivity, 1 MHz 2.7 - ASTM D150	Relative Permittivity, 50/60 Hz	2.8	-	ASTM D150
701110100	Relative Permittivity, 1 MHz	2.7	-	ASTM D150



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Dissipation Factor, 50/60 Hz	0.0052	-	ASTM D150
Dissipation Factor, 1 MHz	0.0071	-	ASTM D150
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
Hot Wire Ignition (PLC)	2	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	3	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	0	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Yellow Card Link	E121562-221035	-	
UL Recognized, 94V-2 Flame Class Rating	0.76	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	1.49	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating	3.4	mm	UL 94
UL Recognized, 94-5VB Flame Class Rating	2.48	mm	UL 94
Oxygen Index (LOI)	30	%	ASTM D2863
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	
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	

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.