

Cyclocac* Resin FR15U Americas: COMMERCIAL

Flame retardant ABS with excellent indoor UV properties and excellent processing. UL94 V-0/5VA rated. Elevated UL RTI rating (90-85-90) for all colors except for blue and green colors (60-60-60).

TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
MECHANICAL			
Tensile Stress, yld, Type I, 0.2 in/min	5400	psi	ASTM D 638
Tensile Stress, brk, Type I, 0.2 in/min	4300	psi	ASTM D 638
Tensile Strain, yld, Type I, 0.2 in/min	2.4	%	ASTM D 638
Tensile Strain, brk, Type I, 0.2 in/min	17	%	ASTM D 638
Tensile Modulus, 0.2 in/min	299000	psi	ASTM D 638
Flexural Stress, yld, 0.05 in/min, 2 in span	9700	psi	ASTM D 790
Flexural Modulus, 0.05 in/min, 2 in span	339000	psi	ASTM D 790
Tensile Stress, yield, 50 mm/min	41	MPa	ISO 527
Tensile Strain, break, 50 mm/min	21.9	%	ISO 527
Tensile Modulus, 1 mm/min	2210	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	63	MPa	ISO 178
Flexural Modulus, 2 mm/min	2260	MPa	ISO 178
IMPACT			
Izod Impact, notched, 73°F	4	ft-lb/in	ASTM D 256
Instrumented Impact Total Energy, 73°F	251	in-lb	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	12	kJ/m ²	ISO 180/1A
THERMAL			
Vicat Softening Temp, Rate B/50	201	°F	ASTM D 1525
HDT, 66 psi, 0.125", unannealed	187	°F	ASTM D 648
HDT, 264 psi, 0.125", unannealed	167	°F	ASTM D 648
CTE, flow, -40°F to 100°F	5.E-05	1/°F	ASTM E 831
CTE, xflow, -40°F to 100°F	5.1E-05	1/°F	ASTM E 831
Vicat Softening Temp, Rate B/50	92	°C	ISO 306
Relative Temp Index, Elec	90	°C	UL 746B
Relative Temp Index, Mech w/impact	85	°C	UL 746B
Relative Temp Index, Mech w/o impact	90	°C	UL 746B
PHYSICAL			
Specific Gravity	1.19	-	ASTM D 792

1) Typical values only. Variations within normal tolerances are possible for various colours. All values are measured at least after 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume rate are measured on injection moulded samples. All samples are prepared according to ISO 294.

2) Only typical data for material selection purpose. Not to be used for part or tool design.
3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
4) Own measurement according to UL.

Source, GMD, Last Update:12/08/2005

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
PHYSICAL			
Mold Shrinkage, flow, 0.125"	0.5 - 0.7	%	GE Method
Melt Flow Rate, 230°C/3.8 kgf	3.3	g/10 min	ASTM D 1238
Melt Viscosity, 200°C, 1000 sec-1	3200	poise	ASTM D 3825
Density	0.04	lb/in ³	ISO 1183
Melt Flow Rate, 220°C/5.0 kg	7	g/10 min	ISO 1133
Melt Volume Rate, MVR at 220°C/10.0 kg	40	cm ³ /10 min	ISO 1133
ELECTRICAL			
Arc Resistance, Tungsten {PLC}	7	PLC Code	ASTM D 495
Hot Wire Ignition {PLC}	2	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	1	PLC Code	UL 746A
Volume Resistivity	>1.E+14	Ohm-cm	IEC 60093
Dielectric Strength, in oil, 3.2 mm	20	kV/mm	IEC 60243-1
FLAME CHARACTERISTICS			
UL Recognized, 94V-0 Flame Class Rating (3)	0.059	in	UL 94
UL Recognized, 94-5VA Rating (3)	0.11	in	UL 94

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PROCESSING PARAMETERS	TYPICAL VALUE	UNIT
Injection Molding		
Drying Temperature	180 - 190	°F
Drying Time	2 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.01	%
Melt Temperature	400 - 450	°F
Nozzle Temperature	400 - 450	°F
Front - Zone 3 Temperature	400 - 430	°F
Middle - Zone 2 Temperature	390 - 410	°F
Rear - Zone 1 Temperature	340 - 360	°F
Mold Temperature	120 - 160	°F
Back Pressure	50 - 100	psi
Screw Speed	30 - 60	rpm
Shot to Cylinder Size	50 - 70	%
Vent Depth	0.0015 - 0.002	in

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