

Cycolac* 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).

Property

TYPICAL PROPERTIES ⁽¹⁾			
	Value	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	37	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	30	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	2.4	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	17	%	ASTM D 638
Tensile Modulus, 5 mm/min	2060	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	67	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2340	MPa	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, 23°C	213	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	28	J	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	93	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	86	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	75	°C	ASTM D 648
CTE, -40°C to 40°C, flow	9.E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	9.18E-05	1/°C	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
Mold Shrinkage, flow, 3.2 mm	0.5 - 0.7	%	SABIC 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	1.19	g/cm 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	Value	Unit	Standard
UL Recognized, 94V-0 Flame Class Rating (3)	1.49	mm	UL 94
UL Recognized, 94-5VA Rating (3)	2.79	mm	UL 94

Source GMD, last updated:12/08/2005

Processing

Parameter	Value	Unit
Injection Molding		
Drying Temperature	80 - 90	°C
Drying Time	2 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.01	%
Melt Temperature	205 - 230	°C
Nozzle Temperature	205 - 230	°C
Front - Zone 3 Temperature	205 - 220	°C
Middle - Zone 2 Temperature	200 - 210	°C
Rear - Zone 1 Temperature	170 - 180	°C
Mold Temperature	50 - 70	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	30 - 60	rpm
Shot to Cylinder Size	50 - 70	%
Vent Depth	0.038 - 0.051	mm

Source GMD, last updated:12/08/2005

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. 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) Internal measurements according to UL standards.

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