

CYCOLAC™ FR15U resin

Acrylonitrile Butadiene Styrene

SABIC Innovative Plastics

Message:

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).

General Information			
UL YellowCard	E121562-220718	E121562-220719	
Additive	Flame Retardant		
Features	Flame Retardant		
	Good Processability		
	Good UV Resistance		
Processing Method	Injection Molding		
Multi-Point Data	Coefficient of Thermal Expansion vs. Temperature (ASTM E831)		
	Flexural DMA (ASTM D4065)		
	Shear DMA (ASTM D4065)		
	Specific Heat vs. Temperature (ASTM D3417)		
	Tensile Fatigue		
	Tensile Stress vs. Strain (ASTM D638)		
	Thermal Conductivity vs. Temperature (ASTM E1530)		
	Viscosity vs. Shear Rate (ASTM D3835)		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.19	g/cm³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR)			
230°C/3.8 kg	3.3	g/10 min	ASTM D1238
220°C/5.0 kg	7.0	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (220°C/10.0 kg)	40.0	cm³/10min	ISO 1133
Molding Shrinkage - Flow (3.20 mm)	0.50 to 0.70	%	Internal Method
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ¹	2070	MPa	ASTM D638
--	2210	MPa	ISO 527-2/1
Tensile Strength			
Yield ²	37.9	MPa	ASTM D638
Yield	41.1	MPa	ISO 527-2/50
Break ³	30.3	MPa	ASTM D638
Tensile Elongation			

Yield ⁴	2.4	%	ASTM D638
Break ⁵	17	%	ASTM D638
Break	22	%	ISO 527-2/50
Flexural Modulus			
50.0 mm Span ⁶	2340	MPa	ASTM D790
-- ⁷	2260	MPa	ISO 178
Flexural Stress			
--	63.3	MPa	ISO 178
Yield, 50.0 mm Span ⁸	67.6	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			
23°C	210	J/m	ASTM D256
23°C ⁹	12	kJ/m ²	ISO 180/1A
Instrumented Dart Impact (23°C, Total Energy)	28.5	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed, 3.20 mm	86.1	°C	
1.8 MPa, Unannealed, 3.20 mm	75.0	°C	
Vicat Softening Temperature			
--	93.9	°C	ASTM D1525 ¹⁰
--	92.0	°C	ISO 306/B50
CLTE			ASTM E831
Flow : -40 to 40°C	9.0E-5	cm/cm/°C	
Transverse : -40 to 40°C	9.2E-5	cm/cm/°C	
RTI Elec	90.0	°C	UL 746
RTI Imp	85.0	°C	UL 746
RTI Str	90.0	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	> 1.0E+14	ohms · cm	IEC 60093
Electric Strength (3.20 mm, in Oil)	20	kV/mm	IEC 60243-1
Arc Resistance ¹¹	PLC 7		ASTM D495
Comparative Tracking Index (CTI)	PLC 1		UL 746
High Amp Arc Ignition (HAI)	PLC 4		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 4		UL 746
Hot-wire Ignition (HWI)	PLC 2		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
1.50 mm	V-0		
2.79 mm	5VA		
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (200°C, 1000 sec ⁻¹)	320	Pa · s	ASTM D3835

Injection	Nominal Value	Unit
Drying Temperature	82.2 to 87.8	°C
Drying Time	2.0 to 4.0	hr
Drying Time, Maximum	8.0	hr
Suggested Max Moisture	0.10	%
Suggested Shot Size	50 to 70	%
Rear Temperature	171 to 182	°C
Middle Temperature	199 to 210	°C
Front Temperature	204 to 221	°C
Nozzle Temperature	204 to 232	°C
Processing (Melt) Temp	204 to 232	°C
Mold Temperature	48.9 to 71.1	°C
Back Pressure	0.345 to 0.689	MPa
Screw Speed	30 to 60	rpm
Vent Depth	0.038 to 0.051	mm

NOTE

1. 5.0 mm/min
2. Type I, 5.0 mm/min
3. Type I, 5.0 mm/min
4. Type I, 5.0 mm/min
5. Type I, 5.0 mm/min
6. 1.3 mm/min
7. 2.0 mm/min
8. 1.3 mm/min
9. 80*10*4
10. Rate B (120°C/h), Loading 2 (50 N)
11. Tungsten Electrode

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