

CYCOLAC™ FR15 resin

Acrylonitrile Butadiene Styrene

SABIC Innovative Plastics

Message:

Flame retardant ABS (non-PBBE additive). Good property/toughness. Excellent moldability. UL94 V-0/5VA rated.

General Information			
Additive	Flame retardancy		
Features	Good formability		
	Good toughness		
	Flame retardancy		
RoHS Compliance	RoHS compliance		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.20	g/cm ³	ASTM D792
--	1.19	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR)			
230°C/3.8 kg	4.0	g/10 min	ASTM D1238
220°C/5.0 kg	10	g/10 min	ISO 1133
Molding Shrinkage - Flow (3.20 mm)	0.50 - 0.70	%	Internal method
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus ¹	2340	MPa	ASTM D638
Tensile Strength			
Yield ²	41.4	MPa	ASTM D638
Yield	41.3	MPa	ISO 527-2/50
Fracture ³	35.2	MPa	ASTM D638
Fracture	31.3	MPa	ISO 527-2/50
Tensile Elongation			
Yield ⁴	2.3	%	ASTM D638
Yield	2.1	%	ISO 527-2/50
Fracture ⁵	9.0	%	ASTM D638
Fracture	34	%	ISO 527-2/50
Flexural Modulus ⁶ (50.0 mm Span)	2720	MPa	ASTM D790
Flexural Strength ⁷ (Yield, 50.0 mm Span)	71.7	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ⁸ (23°C)	20	kJ/m ²	ISO 179/1eA
Notched Izod Impact			
23°C	210	J/m	ASTM D256

-30°C ⁹	6.5	kJ/m ²	ISO 180/1A
23°C ¹⁰	19	kJ/m ²	ISO 180/1A
Instrumented Dart Impact (23°C, Total Energy)	33.9	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, unannealed, 3.20mm	82.2	°C	ASTM D648
1.8 MPa, unannealed, 3.20mm	70.0	°C	ASTM D648
1.8 MPa, unannealed, 64.0mm span ¹¹	73.4	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	86.1	°C	ASTM D1525 ¹²
--	81.2	°C	ISO 306/B50
--	84.1	°C	ISO 306/B120
Linear thermal expansion coefficient			ASTM E831
Flow: -40 to 40°C	8.5E-5	cm/cm/°C	ASTM E831
Lateral: -40 to 40°C	8.6E-5	cm/cm/°C	ASTM E831
RTI Elec	60.0	°C	UL 746
RTI Imp	60.0	°C	UL 746
RTI	60.0	°C	UL 746
Electrical	Nominal Value		Test Method
Arc Resistance ¹³	PLC 7		ASTM D495
Comparative Tracking Index (CTI)	PLC 2		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 3		UL 746
Flammability	Nominal Value		Test Method
Flame Rating			UL 94
1.50 mm	V-0		UL 94
2.49 mm	5VA		UL 94
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (200°C, 1000 sec ⁻¹)	290	Pa · s	ASTM D3835
Injection	Nominal Value	Unit	
Drying Temperature	82.2 - 87.8	°C	
Drying Time	2.0 - 4.0	hr	
Drying Time, Maximum	6.0	hr	
Suggested Max Moisture	0.10	%	
Suggested Shot Size	50 - 70	%	
Rear Temperature	171 - 182	°C	
Middle Temperature	193 - 204	°C	
Front Temperature	199 - 216	°C	
Nozzle Temperature	199 - 221	°C	
Processing (Melt) Temp	199 - 221	°C	

Mold Temperature	48.9 - 71.1	°C
Back Pressure	0.345 - 0.689	MPa
Screw Speed	30 - 60	rpm
Vent Depth	0.038 - 0.051	mm

NOTE		
1.	5.0 mm/min	
2.	Type 1, 5.0 mm/min	
3.	Type 1, 5.0 mm/min	
4.	Type 1, 5.0 mm/min	
5.	Type 1, 5.0 mm/min	
6.	1.3 mm/min	
7.	1.3 mm/min	
8.	80*10*4 sp=62mm	
9.	80*10*4	
10.	80*10*4	
11.	80*10*4 mm	
12.	标准 B (120°C/h), 载荷2 (50N)	
13.	Tungsten electrode	

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