

# CYCOLAC™ RESIN FR23

REGION AMERICAS

## DESCRIPTION

Flame retardant ABS (non-PBBE additives). Good properties/toughness. Excellent moldability. UL94 V-0 rated.

## TYPICAL PROPERTY VALUES

Revision 20180327

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	42	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	35	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	2.1	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	11	%	ASTM D 638
Tensile Modulus, 5 mm/min	2410	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	73	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2720	MPa	ASTM D 790
<b>IMPACT</b>			
Izod Impact, notched, 23°C	267	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	41	J	ASTM D 3763
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	90	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	83	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	72	°C	ASTM D 648
CTE, -40°C to 40°C, flow	7.92E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	7.92E-05	1/°C	ASTM E 831
Relative Temp Index, Elec	60	°C	UL 746B
Relative Temp Index, Mech w/impact	60	°C	UL 746B
Relative Temp Index, Mech w/o impact	60	°C	UL 746B
<b>PHYSICAL</b>			
Specific Gravity	1.17	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 230°C/3.8 kgf	6.8	g/10 min	ASTM D 1238
Melt Viscosity, 200°C, 1000 sec-1	3100	Poise	ASTM D 3825
Melt Flow Rate, 220°C/5.0 kg	9	g/10 min	ISO 1133
Melt Volume Rate, MVR at 220°C/10.0 kg	37	cm <sup>3</sup> /10 min	ISO 1133
<b>FLAME CHARACTERISTICS</b>			

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
UL Recognized, 94V-0 Flame Class Rating (3)	2.31	mm	UL 94
UL Recognized, 94-5VB Rating (3)	2.48	mm	UL 94
<b>INJECTION MOLDING</b>			
Drying Temperature	80 – 90	°C	
Drying Time	2 – 4	hrs	
Drying Time (Cumulative)	6	hrs	
Maximum Moisture Content	0.1	%	
Melt Temperature	200 – 220	°C	
Nozzle Temperature	200 – 220	°C	
Front - Zone 3 Temperature	200 – 215	°C	
Middle - Zone 2 Temperature	195 – 205	°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	

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