



**CYCOLAC™ Resin EX39F**  
**Americas: COMMERCIAL**

Highest impact extrusion ABS for sheet and blow molding applications. FDA food contact compliant.

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	360	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	290	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	3.5	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	108	%	ASTM D 638
Tensile Modulus, 5 mm/min	17100	kgf/cm <sup>2</sup>	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	590	kgf/cm <sup>2</sup>	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	19400	kgf/cm <sup>2</sup>	ASTM D 790
<b>IMPACT</b>			
Izod Impact, notched, 23°C	47	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	32	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	403	cm-kgf	ASTM D 3763
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	106	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	91	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	77	°C	ASTM D 648
CTE, -40°C to 40°C, flow	1.01E-04	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	1.17E-04	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	1.03	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.7 - 0.9	%	SABIC Method
Melt Viscosity, 240°C, 100 sec-1	15200	poise	ASTM D 3825

(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.

(5) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

Source GMD, last updated:

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TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>PHYSICAL</b>			
Melt Volume Rate, MVR at 220°C/10.0 kg	4	cm <sup>3</sup> /10 min	ISO 1133
<b>FLAME CHARACTERISTICS</b>			
UL Recognized, 94HB Flame Class Rating (3)	1.52	mm	UL 94

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
<b>Extrusion Blow Molding</b>		
Drying Temperature	80 - 90	°C
Drying Time	5 - 4	hrs
Drying Time (Cumulative)	24	hrs
Maximum Moisture Content	0.02 - 0.04	%
Minimum Moisture Content	0.04	%
Melt Temperature (Parison)	210 - 225	°C
Barrel - Zone 1 Temperature	190 - 220	°C
Barrel - Zone 2 Temperature	190 - 220	°C
Barrel - Zone 3 Temperature	190 - 220	°C
Barrel - Zone 4 Temperature	190 - 220	°C
Adapter - Zone 5 Temperature	195 - 220	°C
Head - Zone 6 - Top Temperature	195 - 220	°C
Head - Zone 7 - Bottom Temperature	195 - 220	°C
Screw Speed	20 - 60	rpm
Extruder Feed Zone Temperature	60 - 80	°C
Mold Temperature	40 - 90	°C
Die Temperature	195 - 220	°C
<b>Sheet Extrusion</b>		
Drying Temperature	90 - 95	°C
Drying Time	2 - 4	hrs
Maximum Moisture Content	0	%
Melt Temperature	210 - 240	°C
Barrel - Zone 1 Temperature	195 - 210	°C
Barrel - Zone 2 Temperature	200 - 220	°C
Barrel - Zone 3 Temperature	205 - 230	°C
Barrel - Zone 4 Temperature	210 - 235	°C
Adapter Temperature	200 - 225	°C
Die Temperature	210 - 240	°C

- Purge with HDPE prior to changing screw, head, or die tooling and/or machine shutdown.
- For extended downtime, lower barrel, head and die temperatures to 95°C (200°F).

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