

# CYCOLAC™ Resin HMG47MD - Americas

Acrylonitrile Butadiene Styrene  
SABIC

**PROSPECTOR®**

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## Technical Data

### Product Description

General purpose, injection molding ABS for medical applications. Biocompatible (ISO 10993). FDA compliant. Gamma & EtO sterilizable.

### General

Material Status	• Commercial: Active		
UL Yellow Card <sup>1</sup>	• E121562-220700		
Search for UL Yellow Card	• SABIC • CYCOLAC™ Resin		
Availability	• Latin America	• North America	
Features	• Biocompatible • Ethylene Oxide Sterilizable	• General Purpose • Radiation Sterilizable	
Uses	• Appliances • Electrical/Electronic Applications • Electronic Displays	• Fluid Handling • Lawn and Garden Equipment • Medical/Healthcare Applications	• Outdoor Applications • Pharmaceuticals
Agency Ratings	• FDA Unspecified Rating	• ISO 10993	
Processing Method	• Injection Molding		

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density / Specific Gravity			
--	1.05	1.05 g/cm <sup>3</sup>	ASTM D792
--	1.05 g/cm <sup>3</sup>	1.05 g/cm <sup>3</sup>	ISO 1183
Melt Mass-Flow Rate (MFR)			
230°C/3.8 kg	5.6 g/10 min	5.6 g/10 min	ASTM D1238
220°C/10.0 kg	19 g/10 min	19 g/10 min	ISO 1133
Molding Shrinkage - Flow (0.126 in (3.20 mm))	0.50 to 0.80 %	0.50 to 0.80 %	Internal Method

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
-- <sup>3</sup>	329000 psi	2270 MPa	ASTM D638
--	367000 psi	2530 MPa	ISO 527-2/1
Tensile Strength			
Yield <sup>4</sup>	6380 psi	44.0 MPa	ASTM D638
Yield	7250 psi	50.0 MPa	ISO 527-2/5
Break <sup>4</sup>	4790 psi	33.0 MPa	ASTM D638
Break	5080 psi	35.0 MPa	ISO 527-2/5
Tensile Elongation			
Yield <sup>4</sup>	2.0 %	2.0 %	ASTM D638
Yield	2.6 %	2.6 %	ISO 527-2/5
Break <sup>4</sup>	24 %	24 %	ASTM D638
Break	25 %	25 %	ISO 527-2/5
Flexural Modulus			
1.97 in (50.0 mm) Span <sup>5</sup>	339000 psi	2340 MPa	ASTM D790
-- <sup>6</sup>	350000 psi	2410 MPa	ISO 178
Flexural Stress			
-- <sup>6,7</sup>	11000 psi	76.0 MPa	ISO 178
Yield, 1.97 in (50.0 mm) Span <sup>5</sup>	10400 psi	72.0 MPa	ASTM D790



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Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact			
-22°F (-30°C)	2.5 ft·lb/in	130 J/m	ASTM D256
73°F (23°C)	6.0 ft·lb/in	320 J/m	ASTM D256
-22°F (-30°C) <sup>8</sup>	3.8 ft·lb/in <sup>2</sup>	8.0 kJ/m <sup>2</sup>	ISO 180/1A
73°F (23°C) <sup>8</sup>	11 ft·lb/in <sup>2</sup>	23 kJ/m <sup>2</sup>	ISO 180/1A
Instrumented Dart Impact			ASTM D3763
73°F (23°C), Total Energy	266 in·lb	30.0 J	
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed, 0.126 in (3.20 mm)	201 °F	94.0 °C	ASTM D648
264 psi (1.8 MPa), Unannealed, 0.126 in (3.20 mm)	176 °F	80.0 °C	ASTM D648
264 psi (1.8 MPa), Unannealed, 0.157 in (4.00 mm), 2.52 in (64.0 mm) Span <sup>8</sup>	176 °F	80.0 °C	ISO 75-2/Af
Vicat Softening Temperature			
--	208 °F	98.0 °C	ASTM D1525 <sup>9</sup>
--	212 °F	100 °C	ISO 306/B50
CLTE			ISO 11359-2
Flow : -40 to 104°F (-40 to 40°C)	4.9E-5 in/in/°F	8.8E-5 cm/cm/°C	
Transverse : -40°F (-40°C)	4.9E-5 in/in/°F	8.8E-5 cm/cm/°C	

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	176 to 203 °F	80 to 95 °C
Drying Time	2.0 to 4.0 hr	2.0 to 4.0 hr
Suggested Max Moisture	0.10 %	0.10 %
Suggested Shot Size	50 to 70 %	50 to 70 %
Rear Temperature	374 to 410 °F	190 to 210 °C
Middle Temperature	401 to 437 °F	205 to 225 °C
Front Temperature	419 to 464 °F	215 to 240 °C
Nozzle Temperature	428 to 500 °F	220 to 260 °C
Processing (Melt) Temp	428 to 500 °F	220 to 260 °C
Mold Temperature	122 to 158 °F	50 to 70 °C
Back Pressure	43.5 to 102 psi	0.300 to 0.700 MPa
Screw Speed	30 to 60 rpm	30 to 60 rpm
Vent Depth	1.5E-3 to 2.0E-3 in	0.038 to 0.051 mm

## Injection Notes

Injection Molding Parameters

- Drying Time (Cumulative): 8 hrs

## Notes

<sup>1</sup> A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

<sup>2</sup> Typical properties: these are not to be construed as specifications.

<sup>3</sup> 0.20 in/min (5.0 mm/min)

<sup>4</sup> Type I, 0.20 in/min (5.0 mm/min)

<sup>5</sup> 0.051 in/min (1.3 mm/min)

<sup>6</sup> 0.079 in/min (2.0 mm/min)

<sup>7</sup> at Yield

<sup>8</sup> 80\*10\*4 mm

<sup>9</sup> Rate A (50°C/h), Loading 2 (50 N)



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### Where to Buy

#### Supplier

SABIC

Web: <http://www.sabic.com/>

#### Distributor

##### 3Polymer (Guangzhou) Chemical Technology Co., Ltd.

Telephone: +86-20-3466-7988

Web: <http://3polymer.com>

Availability: China

##### Hisun Chemical (HK) Limited

Telephone: +86-20-8732-0686

Web: <http://www.hisunchemical.com>

Availability: Asia Pacific

##### Nexeo Plastics

Telephone: 833-446-3936

Web: <https://www.nexeoplastics.com/>

Availability: North America

