



CYCOLAC™ HMG94MD resin

Wednesday, 30 April 2014

General Information

Product Description

Superior flow, injection molding ABS for medical applications. Good impact. For thin-wall applications. Biocompatible (ISO10993). FDA compliant. Gamma & EtO sterilizable.

General

Material Status	• Commercial: Active
Availability	• Europe
Features	• Biocompatible • Food Contact Acceptable • Good Impact Resistance • Ethylene Oxide Sterilizable • Good Flow • Radiation Sterilizable
Uses	• Medical/Healthcare Applications • Thin-walled Parts
Agency Ratings	• FDA Unspecified Rating • ISO 10993
RoHS Compliance	• RoHS Compliant
Processing Method	• Injection Molding

ASTM and ISO Properties ¹

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.04	g/cm ³	ASTM D792
Density	1.06	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	12	g/10 min	ASTM D1238
Melt Mass-Flow Rate (MFR) (220°C/5.0 kg)	13	g/10 min	ISO 1133
Molding Shrinkage - Flow (3.20 mm)	0.50 to 0.80	%	Internal Method
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus ²	2480	MPa	ASTM D638
Tensile Modulus	2450	MPa	ISO 527-2/1
Tensile Strength ³ (Yield)	46.9	MPa	ASTM D638
Tensile Stress (Yield)	40.0	MPa	ISO 527-2/5
Tensile Strength ³ (Break)	35.9	MPa	ASTM D638
Tensile Stress (Break)	35.0	MPa	ISO 527-2/5
Tensile Elongation ³ (Yield)	2.0	%	ASTM D638
Tensile Strain (Yield)	2.0	%	ISO 527-2/5
Tensile Elongation ³ (Break)	18	%	ASTM D638
Tensile Strain (Break)	35	%	ISO 527-2/5
Flexural Modulus ⁴ (50.0 mm Span)	2620	MPa	ASTM D790
Flexural Modulus ⁵	2500	MPa	ISO 178
Flexural Strength ^{5,6}	70.0	MPa	ISO 178
Flexural Strength ⁴ (Yield, 50.0 mm Span)	79.3	MPa	ASTM D790



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Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ⁷ (23°C)	23	kJ/m ²	ISO 179/1eA
Notched Izod Impact			ASTM D256
-30°C	80	J/m	
23°C	240	J/m	
Notched Izod Impact Strength ⁸			ISO 180/1A
-30°C	7.0	kJ/m ²	
23°C	16	kJ/m ²	
Instrumented Dart Impact (23°C, Total Energy)	21.0	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed, 3.20 mm	93.0	°C	
Deflection Temperature Under Load			ASTM D648
1.8 MPa, Unannealed, 3.20 mm	77.0	°C	
Heat Deflection Temperature ⁹			ISO 75-2/Af
1.8 MPa, Unannealed, 64.0 mm Span	80.0	°C	
Vicat Softening Temperature	98.0	°C	ASTM D1525 ¹⁰
Vicat Softening Temperature			
--	98.0	°C	ISO 306/B50
--	100	°C	ISO 306/B120
CLTE - Flow (-40 to 40°C)	0.000088	cm/cm/°C	ISO 11359-2
CLTE - Transverse (-40 to 40°C)	0.000085	cm/cm/°C	ISO 11359-2
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (240°C, 1000 sec ⁻¹)	173	Pa·s	ASTM D3835

Processing Information

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	0.010	%
Suggested Shot Size	50 to 70	%
Rear Temperature	188 to 199	°C
Middle Temperature	199 to 210	°C
Front Temperature	204 to 227	°C
Nozzle Temperature	204 to 246	°C
Processing (Melt) Temp	204 to 246	°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



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Notes

¹ Typical properties: these are not to be construed as specifications.
² 5.0 mm/min
³ Type I, 5.0 mm/min
⁴ 1.3 mm/min
⁵ 2.0 mm/min
⁶ Yield
⁷ 80*10*4 sp=62mm
⁸ 80*10*4
⁹ 80*10*4 mm
¹⁰ Rate B (120°C/h), Loading 2 (50 N)

