Technical Data Sheet

LyondellBasell

Diamond Abs TM-40

Acrylonitrile Butadiene Styrene
LyondellBasell Industries
Engineering Plastics

General		
Material Status	• Commercial: Active	
Availability	• North America	
Features	• High Heat Resistance	
Appearance	• Black	
Forms	• Pellets	
Processing Method	• Extrusion	• Injection Molding

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density / Specific Gravity	1.07	1.07 g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	0.40 g/10 min	0.40 g/10 min	ASTM D1238
Mechanical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Tensile Strength			
Yield [1]	7100 psi	49.0 MPa	ASTM D638
Yield	6070 psi	41.9 MPa	ISO 527-2
Flexural Modulus			
Tangent [2]	317000 psi	2190 MPa	ASTM D790
Chord	327000 psi	2250 MPa	ISO 178
Impact	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Charpy Notched Impact Strength			ISO 179
-22°F (-30°C)	3.9 ft·lb/in²	8.2 kJ/m²	
73°F (23°C)	6.3 ft·lb/in²	13 kJ/m²	
Notched Izod Impact			
-22°F (-30°C)	1.8 ft·lb/in	94 J/m	ASTM D256
73°F (23°C)	2.9 ft·lb/in	160 J/m	ASTM D256
-22°F (-30°C)	3.8 ft·lb/in²	7.9 kJ/m²	ISO 180
73°F (23°C)	6.6 ft·lb/in²	14 kJ/m²	ISO 180
Hardness	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Rockwell Hardness (R-Scale)	104	104	ASTM D785
Thermal	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed	253 °F	123 °C	ASTM D648
66 psi (0.45 MPa), Unannealed	255 °F	124 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed, 0.125 in (3.18 mm)	223 °F	106 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	217 °F	103 °C	ISO 75-2/A
264 psi (1.8 MPa), Annealed, 0.125 in (3.18 mm)	240 °F	116 °C	ASTM D648
Vicat Softening Temperature			
--	284 °F	140 °C	ASTM D1525
--	279 °F	137 °C	ISO 306
CLTE			ASTM E831
Flow	5.1E-5 in/in/°F	9.1E-5 cm/cm/°C	
Transverse	5.9E-5 in/in/°F	1.1E-4 cm/cm/°C	

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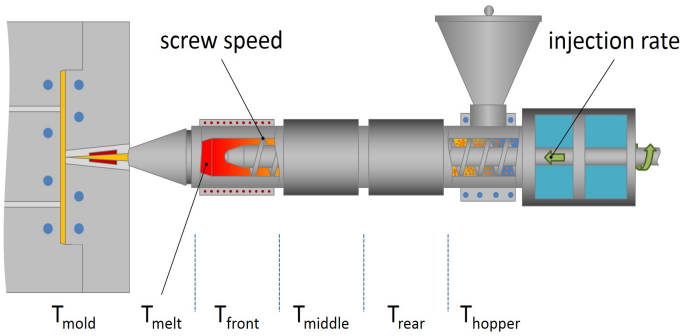

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	176 to 194 °F	80 to 90 °C
Drying Time	2.0 to 4.0 hr	2.0 to 4.0 hr
Suggested Max Moisture	0.10 %	0.10 %
Rear Temperature	392 to 482 °F	200 to 250 °C
Middle Temperature	392 to 482 °F	200 to 250 °C
Front Temperature	392 to 482 °F	200 to 250 °C
Mold Temperature	104 to 176 °F	40 to 80 °C
Injection Pressure	7000 to 11000 psi	48.3 to 75.8 MPa

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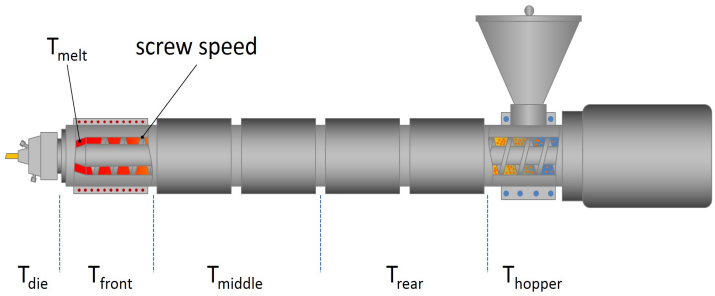

Extrusion	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	180 to 200 °F	82 to 93 °C
Drying Time	3.0 to 4.0 hr	3.0 to 4.0 hr
Suggested Max Moisture	< 0.02 %	< 0.02 %
Suggested Max Regrind	40 %	40 %

Extrusion Notes

Polish roll Top: Down stack 200 F, Up stack 200 F
Polish roll Middle: Down stack 165 F, Up stack 190 F
Polish roll Bottom: Down stack 200 F, Up stack 180 F

Extruder Temperature Profile

Screw Design: 3:1 compression ratio

Feed Throat: Cool water to prevent pellet bridging in the hopper feed throat

Extruder Zone 1: 400-415 F
Extruder Zone 2: 415-425 F
Extruder Zone 3: 420-430 F
Extruder Zone 4: 430-445 F
Extruder Zone 5: 420-430 F
Extruder Zone 6: 420-430 F
Extruder Zone 7: 420-430 F

Breaker Plate: 20/40/80/60/20
Gate: 425-450 F
Melt Temperature: 430-470 F
Melt Pump: 430-450 F

Co-ex block: 425-450 F

Die: Top: 425-450 F
Bottom: 425-450 F

Questions: Contact your AR/DE TS specialist for assistance

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Notes

[1] 2.0 in/min (51 mm/min)

[2] 0.050 in/min (1.3 mm/min)

Notes

These are typical property values not to be construed as specification limits.

Processing Techniques

Specific recommendations for resin type and processing conditions can only be made when the end use, required properties and fabrication equipment are known.

Product Storage and Handling

- Product should be stored in dry conditions at temperatures below 50°C and protected from UV-light
- Improper storage may bring damage to the packaging and can negatively affects on the quality of this product
- Keep material completely dry for good processing

Company Information

For further information regarding the LyondellBasell company, please visit http://www.lyb.com/.

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