

Durethan® BC 304 000000

Polyamide 6

LANXESS GmbH

Message:

PA 6, non-reinforced, injection molding, improved impact strength

Applications: automotive bumper-parts, tool-grips, bike-fenders, ski-shoe parts, suitcase-rollers

General Information				
Features		Impact resistance, good		
Uses		Roller		
		Leather case		
		Car anti-collision bar		
		Soft handle		
		Sporting goods		
Agency Ratings		EC 1907/2006 (REACH)		
Forms		Particle		
Processing Method		Injection molding		
Physical	Dry	Conditioned	Unit	Test Method
Specific Gravity	1.06	--	g/cm ³	ASTM D792, ISO 1183
Apparent Density	0.60	--	g/cm ³	ISO 60
Molding Shrinkage				ISO 2577
Vertical flow direction ¹	1.5	--	%	ISO 2577
Vertical flow direction: 120°C, 4 hours ²	0.46	--	%	ISO 2577
Flow direction ³	1.1	--	%	ISO 2577
Flow direction: 120°C, 4 hours ⁴	0.38	--	%	ISO 2577
Water Absorption				ISO 62
Saturated, 23°C	7.5	--	%	ISO 62
Equilibrium, 23°C, 50% RH	2.2	--	%	ISO 62
Hardness	Dry	Conditioned	Unit	Test Method
Ball Indentation Hardness	80.0	35.0	MPa	ISO 2039-1
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				
23°C ⁵	1800	800	MPa	ASTM D638
23°C	1800	800	MPa	ISO 527-2/1
Tensile Strength (Yield, 23°C)	45.0	35.0	MPa	ASTM D638, ISO 527-2/50
Tensile Elongation				
Yield, 23°C	4.0	--	%	ASTM D638

Yield, 23°C	4.5	30	%	ISO 527-2/50
Fracture, 23°C	> 200	> 200	%	ASTM D638
Nominal Tensile Strain at Break (23°C)	> 50	> 50	%	ISO 527-2/50
Flexural Modulus				
23°C	1600	752	MPa	ASTM D790
23°C ⁶	1600	700	MPa	ISO 178/A
Flexural Strength				
5.0% strain, 23°C	55.2	31.0	MPa	ASTM D790
23°C ⁷	60.0	30.0	MPa	ISO 178/A
3.5% strain, 23°C ⁸	55.0	25.0	MPa	ISO 178/A
Flexural Strain at Flexural Strength ⁹	7.0	9.0	%	ISO 178/A
Burning Behavior (> 1.00 mm)	Passed	--		FMVSS 302
Residual Moisture Content ¹⁰	0.030 - 0.12		%	
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				
				ISO 179/1eA
-30°C	20	20	kJ/m ²	ISO 179/1eA
23°C	85	120	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength				
				ISO 179/1eU
-30°C	No Break	No Break		ISO 179/1eU
23°C	No Break	No Break		ISO 179/1eU
Notched Izod Impact				
-40°C, 3.18 mm	650	650	J/m	ASTM D256
23°C, 3.18 mm	650	920	J/m	ASTM D256
-30°C	30	17	kJ/m ²	ISO 180/1A
23°C	70	100	kJ/m ²	ISO 180/1A
Multi-Axial Instrumented Impact Energy				
				ISO 6603-2
-30°C	125	--	J	ISO 6603-2
23°C	120	125	J	ISO 6603-2
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, not annealed, 3.99mm	90.0	--	°C	ASTM D648
0.45 MPa, not annealed	90.0	--	°C	ISO 75-2/B
1.8 MPa, not annealed, 3.99mm	50.0	--	°C	ASTM D648
1.8 MPa, not annealed	50.0	--	°C	ISO 75-2/A
8.0 MPa, not annealed	40.0	--	°C	ISO 75-2/C

Vicat Softening Temperature	150	--	°C	ISO 306/B50
Ball Pressure Test (194°C)	Pass	--		IEC 60695-10-2
Melting Temperature (DSC)	222	--	°C	ISO 11357
Linear thermal expansion coefficient				ISO 11359-2
Flow: 23 to 55°C	1.5E-4	--	cm/cm/°C	ISO 11359-2
Lateral: 23 to 55°C	1.6E-4	--	cm/cm/°C	ISO 11359-2
Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	1.0E+14	1.0E+13	ohms	IEC 60093
Volume Resistivity (23°C)	1.0E+15	1.0E+13	ohms·cm	IEC 60093
Dielectric Strength (23°C, 1.00 mm)	36	36	kV/mm	IEC 60243-1
Dielectric Constant				IEC 60250
50 Hz ¹¹	3.30	9.60		IEC 60250
1 MHz	3.10	3.50		IEC 60250
100 Hz	3.30	11.0		IEC 60250
1 MHz	3.00	3.50		IEC 60250
Dissipation Factor				IEC 60250
23°C, 50 Hz	0.010	0.15		IEC 60250
23°C, 1 MHz	0.010	0.060		IEC 60250
Comparative Tracking Index (CTI)	--	600	V	ASTM D3638
Comparative Tracking Index				IEC 60112
Solution a	600	--	V	IEC 60112
Solution B	600	--	V	IEC 60112
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
1.60 mm	HB	--		UL 94
3.20 mm	HB	--		UL 94
Glow Wire Flammability Index (2.00 mm)	650	--	°C	IEC 60695-2-12
Oxygen Index ¹²	21	--	%	ISO 4589-2
Injection	Dry	Unit		
Drying Temperature	80.0		°C	
Drying Time	2.0 - 6.0		hr	
Processing (Melt) Temp	260 - 280		°C	
Mold Temperature	80.0 - 90.0		°C	
NOTE				
1.	150x105x3; 260 °C / MT 80 °C; 500 bar			
2.	Post-shrinkage: 150x105x3; 120 °C; 4 h			

3.	150x105x3; 260 °C / MT 80 °C; 500 bar
4.	Post-shrinkage: 150x105x3; 120 °C; 4 h
5.	1.0 mm/min
6.	2.0 mm/min
7.	2.0 mm/min
8.	2.0 mm/min
9.	2.0 mm/min
10.	Karl Fischer
11.	Tinfoil electrodes
12.	Procedure A

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