

Durethan® BC 304 000000

Polyamide 6

LANXESS GmbH

Message:

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

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
23°C	1.06	--	g/cm ³	ISO 1183
Apparent Density	0.60	--	g/cm ³	ISO 60
Molding Shrinkage				ISO 2577
Vertical flow direction: 260°C, 3.00mm ¹	1.5	--	%	ISO 2577
Vertical flow direction: 120°C, 4 hours, 3.00mm ²	0.46	--	%	ISO 2577
Flow direction: 260°C, 3.00mm ³	1.1	--	%	ISO 2577
Flow direction: 120°C, 4 hours, 3.00mm 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
3.5% strain, 23°C	55.0	25.0	MPa	ISO 178/A
23°C ⁷	60.0	30.0	MPa	ISO 178/A
Flexural Strain at Flexural Strength ⁸ (23°C)	7.0	9.0	%	ISO 178/A
Burning Behavior ⁹ (> 1.00 mm)	passed	--		ISO 3795
ISO Shortname	PA 6-HI, GR, 14-020	--		ISO 1874
Residual Moisture Content	0.030 - 0.12		%	Karl Fisher
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, unannealed, 39.9mm	90.0	--	°C	ASTM D648
0.45 MPa, not annealed	90.0	--	°C	ISO 75-2/B

1.8 MPa, not annealed	50.0	--	°C	ISO 75-2/A
1.8 MPa, annealing, 3.99mm	50.0	--	°C	ASTM D648
8.0 MPa, not annealed	40.0	--	°C	ISO 75-2/C
Vicat Softening Temperature	150	--	°C	ISO 306/B50, ISO 306/B120
Ball Pressure Test (194°C)	Pass	--		IEC 60695-10-2
Melting Temperature ¹⁰	222	--	°C	ISO 11357-3
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+15	1.0E+13 - 1.0E+14	ohms	IEC 60093
Volume Resistivity (23°C)	1.0E+15	1.0E+12 - 1.0E+13	ohms·cm	IEC 60093
Dielectric Strength				IEC 60243-1
23°C, 1.00 mm	35	35	kV/mm	IEC 60243-1
23°C, 3.00 mm	36	36	kV/mm	IEC 60243-1
Dielectric Constant				IEC 60250
23°C, 50 Hz ¹¹	3.30	9.60		IEC 60250
23°C, 1 MHz ¹²	3.10	3.50		IEC 60250
23°C, 100 Hz	3.30	11.0		IEC 60250
23°C, 1 MHz	3.00	3.50		IEC 60250
Dissipation Factor				IEC 60250
23°C, 50 Hz	0.010	0.15		IEC 60250
23°C, 100 Hz	7.0E-3	0.18		IEC 60250
	0.010	0.060		
23°C, 1 MHz	0.015	0.090		IEC 60250
Comparative Tracking Index				
Solution a ¹³	600	--	V	IEC 60112
Solution B ¹⁴	600	--	V	IEC 60112
--	--	600	V	ASTM D3638
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 ¹⁵	21	--	%	ISO 4589-2
Injection	Dry	Unit	Test Method	
Drying Temperature - Dry Air Dryer	80.0		°C	

Drying Time - Dry Air Dryer	2.0 - 6.0	hr
Processing (Melt) Temp	260 - 280	°C
Mold Temperature	80.0 - 90.0	°C

NOTE

1.	150x105x3mm, 80°C MT, 500 bar
2.	150x105x3mm
3.	150x105x3mm, 80°C MT, 500 bar
4.	150x105x3mm
5.	1.0 mm/min
6.	2.0 mm/min
7.	2.0 mm/min
8.	2 mm/min
9.	US-FMVSS302
10.	10°C/min
11.	Tinfoil Electrodes
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13.	Erosion depth: 1.70mm
14.	Erosion depth: 2.30mm
15.	Procedure A

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