

Durethan® BC 304 000000

Polyamide 6

LANXESS GmbH

Message:

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

General Information				
Features	Good Impact Resistance			
Uses	Automotive Bumper			
	Flexible Grips			
	Luggage			
	Rollers			
	Sporting Goods			
Agency Ratings	EC 1907/2006 (REACH)			
Forms	Pellets			
Processing Method	Injection Molding			
Multi-Point Data	Isochronous Stress vs. Strain (ISO 11403-1)			
	Isothermal Stress vs. Strain (ISO 11403-1)			
	Secant Modulus vs. Strain (ISO 11403-1)			
Part Marking Code (ISO 11469)	ISO 1874-PA 6-HI, GR, 14-020			
Physical	Dry	Conditioned	Unit	Test Method
Specific Gravity				
	1.05			
--	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
Across Flow : 260°C, 3.00 mm ¹	1.5	--	%	
Across Flow : 120°C, 4 hr, 3.00 mm ²	0.46	--	%	
Flow : 260°C, 3.00 mm ³	1.1	--	%	
Flow : 120°C, 4 hr, 3.00 mm ⁴	0.38	--	%	
Water Absorption				ISO 62
Saturation, 23°C	7.5	--	%	
Equilibrium, 23°C, 50% RH	2.2	--	%	

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
Break, 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 to 0.12		%	Karl Fisher
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	20	20	kJ/m ²	
23°C	85	120	kJ/m ²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	No Break	No Break		
23°C	No Break	No Break		
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	

23°C	120	125	J	
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed, 39.9 mm	90.0	--	°C	ASTM D648
0.45 MPa, Unannealed	90.0	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	50.0	--	°C	ISO 75-2/A
1.8 MPa, Annealed, 3.99 mm	50.0	--	°C	ASTM D648
8.0 MPa, Unannealed	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
CLTE				ISO 11359-2
Flow : 23 to 55°C	1.5E-4	--	cm/cm/°C	
Transverse : 23 to 55°C	1.6E-4	--	cm/cm/°C	
Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	1.0E+14 to 1.0E+15	1.0E+13 to 1.0E+14	ohms	IEC 60093
Volume Resistivity (23°C)	1.0E+15	1.0E+12 to 1.0E+13	ohms·cm	IEC 60093
Electric Strength				IEC 60243-1
23°C, 1.00 mm	35	35	kV/mm	
23°C, 3.00 mm	36	36	kV/mm	
Dielectric Constant				IEC 60250
23°C, 50 Hz ¹¹	3.30	9.60		
23°C, 1 MHz ¹²	3.10	3.50		
23°C, 100 Hz	3.30	11.0		
23°C, 1 MHz	3.00	3.50		
Dissipation Factor				IEC 60250
23°C, 50 Hz	0.010	0.15		
23°C, 100 Hz	7.0E-3	0.18		
	0.010	0.060		
23°C, 1 MHz	0.015	0.090		
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	--		
3.20 mm	HB	--		

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 to 6.0		hr	
Processing (Melt) Temp	260 to 280		°C	
Mold Temperature	80.0 to 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.	Depth of Erosion: 1.70 mm
14.	Depth of Erosion: 2.30 mm
15.	Procedure A

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