

Durethan® B 31 SK 000000

Polyamide 6

LANXESS GmbH

Message:

PA 6, non-reinforced, injection molding

General Information				
UL YellowCard		E245249-473561		
Processing Method		Injection Molding		
Multi-Point Data		Creep Modulus vs. Time (ISO 11403-1)		
		Isochronous Stress vs. Strain (ISO 11403-1)		
		Isothermal Stress vs. Strain (ISO 11403-1)		
		Secant Modulus vs. Strain (ISO 11403-1)		
		Specific Volume vs Temperature (ISO 11403-2)		
		Viscosity vs. Shear Rate (ISO 11403-2)		
Physical	Dry	Conditioned	Unit	Test Method
Specific Gravity				
	1.13			
--	1.14	--	g/cm ³	ASTM D792
23°C	1.14	--	g/cm ³	ISO 1183
Apparent Density	0.60	--	g/cm ³	ISO 60
Melt Volume-Flow Rate (MVR) (260°C/5.0 kg)	110	--	cm ³ /10min	ISO 1133
Molding Shrinkage				ISO 2577
Across Flow : 280°C, 3.00 mm ¹	1.1	--	%	
Across Flow : 120°C, 4 hr, 3.00 mm ²	0.15	--	%	
Flow : 280°C, 3.00 mm ³	0.90	--	%	
Flow : 120°C, 4 hr, 3.00 mm ⁴	0.15	--	%	
Water Absorption				ISO 62
Saturation, 23°C	10	--	%	
Equilibrium, 23°C, 50% RH	3.0	--	%	
Hardness	Dry	Conditioned	Unit	Test Method
Ball Indentation Hardness	150	55.0	MPa	ISO 2039-1
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				
23°C ⁵	3200	1100	MPa	ASTM D638

23°C	3500	1100	MPa	ISO 527-2/1
Tensile Strength				
Yield, 23°C	80.0	40.0	MPa	ASTM D638
Yield, 23°C	85.0	50.0	MPa	ISO 527-2/50
Break, 23°C	50.0	60.0	MPa	ASTM D638
Tensile Elongation				
Yield, 23°C	4.0	20	%	ASTM D638, ISO 527-2/50
Break, 23°C	35	> 50	%	ASTM D638
Nominal Tensile Strain at Break (23°C)	10	> 50	%	ISO 527-2/50
Tensile Creep Modulus				ISO 899-1
1 hr	--	900	MPa	
1000 hr	--	700	MPa	
Flexural Modulus				
23°C	2700	703	MPa	ASTM D790
23°C ⁶	3000	900	MPa	ISO 178/A
Flexural Strength				
5.0% Strain, 23°C	115	35.0	MPa	ASTM D790
3.5% Strain, 23°C	100	30.0	MPa	ISO 178/A
23°C ⁷	120	40.0	MPa	ISO 178/A
Flexural Strain at Flexural Strength ⁸ (23°C)	6.0	8.0	%	ISO 178/A
Burning Behavior ⁹ (> 1.00 mm)	passed	--		ISO 3795
ISO Shortname	PA 6, GR, 14-030,	--		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
-40°C	< 10	< 10	kJ/m ²	
-30°C	< 10	< 10	kJ/m ²	
23°C	< 10	25	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				
23°C, 3.18 mm	59	750	J/m	ASTM D256
-30°C	< 10	< 10	kJ/m ²	ISO 180/1A
23°C	< 10	< 10	kJ/m ²	ISO 180/1A
Unnotched Izod Impact Strength				ISO 180/1U
-30°C	120	--	kJ/m ²	
23°C	120 kJ/m ²	No Break		

Multi-Axial Instrumented Impact Energy				ISO 6603-2
-30°C	70.0	--	J	
23°C	46.0	--	J	
Multi-Axial Instrumented Impact Peak Force				ISO 6603-2
-30°C	6810	--	N	
23°C	4650	--	N	
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed, 39.9 mm	180	--	°C	ASTM D648
0.45 MPa, Unannealed	170	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	60.0	--	°C	ISO 75-2/A
1.8 MPa, Annealed, 3.99 mm	60.0	--	°C	ASTM D648
8.0 MPa, Unannealed	50.0	--	°C	ISO 75-2/C
Vicat Softening Temperature	200	--	°C	ISO 306/B50, ISO 306/B120
Melting Temperature ¹⁰	222	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C	7.0E-5	--	cm/cm/°C	
Transverse : 23 to 55°C	9.0E-5	--	cm/cm/°C	
RTI Elec (1.50 mm)	105	--	°C	UL 746
RTI Imp (1.50 mm)	65.0	--	°C	UL 746
RTI Str (1.50 mm)	75.0	--	°C	UL 746
Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	1.0E+13 to 1.0E+15	1.0E+12 to 1.0E+14	ohms	IEC 60093
Volume Resistivity (23°C)	1.0E+15	1.0E+12	ohms·cm	IEC 60093
Electric Strength				IEC 60243-1
23°C, 1.00 mm	30	30	kV/mm	
23°C, 3.00 mm	30	35	kV/mm	
Dielectric Constant				IEC 60250
23°C, 50 Hz ¹¹	3.80	20.0		
23°C, 1 MHz ¹²	3.40	4.60		
23°C, 100 Hz	4.00	13.0		
23°C, 1 MHz	3.50	4.00		
Dissipation Factor				IEC 60250
23°C, 50 Hz	0.050	2.3		
23°C, 100 Hz	6.0E-3	0.19		
	0.020	0.10		
23°C, 1 MHz	0.070	0.40		

Comparative Tracking Index				
Solution A	600	--	V	IEC 60112
	450			
Solution B	525	--	V	IEC 60112
--	--	600	V	ASTM D3638
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
1.50 mm	V-2	--		
1.60 mm	V-2	--		
3.00 mm	V-2	--		
3.20 mm	V-2	--		
Glow Wire Flammability Index (2.00 mm)	750	--	°C	IEC 60695-2-12
Oxygen Index ¹³	25	--	%	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 100		°C	
NOTE				
1.	150x105x3mm, 80°C MT, 400 bar			
2.	150x105x3mm			
3.	150x105x3mm, 80°C MT, 400 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			
12.	Tinfoil Electrodes			
13.	Procedure A			

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