

Technical Data

Product Description

Unreinforced Polyamide 66

General

Material Status	• Commercial: Active
Availability	• Africa & Middle East • Asia Pacific
RoHS Compliance	• Contact Manufacturer
Forms	• Pellets
Processing Method	• Injection Molding
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1)
Part Marking Code (ISO 11469)	• PA66
Resin ID (ISO 1043)	• PA66

Physical	Dry	Conditioned	Unit	Test Method
Density	1.14	--	g/cm ³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow	1.4	--	%	
Flow	1.4	--	%	
Water Absorption				ISO 62
Saturation, 73°F (23°C), 0.0787 in (2.00 mm)	8.5	--	%	
Equilibrium, 73°F (23°C), 0.0787 in (2.00 mm), 50% RH	2.6	--	%	
Viscosity Number				ISO 307
96% H2SO4 (Sulphuric Acid)	150	--	cm ³ /g	

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus	450000 (3100)	203000 (1400)	psi (MPa)	ISO 527-2
Tensile Stress (Yield)	11900 (82.0)	7980 (55.0)	psi (MPa)	ISO 527-2
Tensile Strain (Yield)	4.5	25	%	ISO 527-2
Nominal Tensile Strain at Break	25	> 50	%	ISO 527-2
Tensile Creep Modulus				ISO 899-1
1 hr	--	174000 (1200)	psi (MPa)	
1000 hr	--	102000 (700)	psi (MPa)	
Flexural Modulus	406000 (2800)	174000 (1200)	psi (MPa)	ISO 178
Poisson's Ratio	0.37	0.43		ISO 527
Abrasion Resistance	6.00	--	mm ³	ISO 4649



Films	Dry	Conditioned	Unit	Test Method
Tensile Strength				ISO 527-3
MD	11600 (80.0)	--	psi (MPa)	
TD	10900 (75.0)	--	psi (MPa)	
Tensile Elongation				ISO 527-3
MD : Break	300	--	%	
TD : Break	250	--	%	
Water Vapor Transmission Rate				DIS 15106-1/-2
73°F (23°C), 85% RH	0.52 (8.0)	--	g/100 in ² /24 hr (g/m ² /24 hr)	
Oxygen Transmission Rate ² (73°F (23°C))	12	--	cm ³ /m ² /bar/24 hr	DIS 15105-1/-2
Carbon Dioxide Transmission Rate ²				DIS 15105-1/-2
73°F (23°C), 3.9 mil (100.0 µm)	45.0	--	cm ³ /m ² /bar/24 hr	
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-22°F (-30°C)	2.1 (4.5)	1.4 (3.0)	ft·lb/in ² (kJ/m ²)	
73°F (23°C)	2.6 (5.5)	7.1 (15)	ft·lb/in ² (kJ/m ²)	
Charpy Unnotched Impact Strength				ISO 179/1eU
-22°F (-30°C)	190 (400)	No Break	ft·lb/in ² (kJ/m ²)	
73°F (23°C)	No Break	No Break		
Notched Izod Impact Strength				ISO 180/1A
-40°F (-40°C)	2.6 (5.5)	--	ft·lb/in ² (kJ/m ²)	
-22°F (-30°C)	2.6 (5.5)	--	ft·lb/in ² (kJ/m ²)	
73°F (23°C)	2.6 (5.5)	5.7 (12)	ft·lb/in ² (kJ/m ²)	
Unnotched Izod Impact Strength				ISO 180/1U
-22°F (-30°C)	140 (300)	--	ft·lb/in ² (kJ/m ²)	
73°F (23°C)	No Break	No Break		
Hardness	Dry	Conditioned	Unit	Test Method
Ball Indentation Hardness				ISO 2039-1
H 358/30	26100 (180)	12300 (85.0)	psi (MPa)	
H 961/30	23200 (160)	--	psi (MPa)	



Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
66 psi (0.45 MPa), Unannealed	374 (190)	--	°F (°C)	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	158 (70.0)	--	°F (°C)	ISO 75-2/A
Glass Transition Temperature ³	140 (60.0)	--	°F (°C)	ISO 11357-2
Vicat Softening Temperature	464 (240)	--	°F (°C)	ISO 306/B50
Melting Temperature ³	504 (262)	--	°F (°C)	ISO 11357-3
CLTE				ISO 11359-2
Flow	5.6E-5 (1.0E-4)	--	in/in/°F (cm/cm/°C)	
Transverse	6.1E-5 (1.1E-4)	--	in/in/°F (cm/cm/°C)	
Effective Thermal Diffusivity	9.00E-8	--	m ² /s	
Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	--	1.0E+12	ohms	IEC 62631-3-2
Volume Resistivity	1.0E+13	1.0E+11	ohms·m	IEC 62631-3-1
Electric Strength	810 (32)	710 (28)	V/mil (kV/mm)	IEC 60243-1
Relative Permittivity				IEC 62631-2-1
1 MHz	3.50	4.00		
100 Hz	3.80	6.00		
Dissipation Factor				IEC 62631-2-1
100 Hz	8.0E-3	0.21		
1 MHz	0.018	0.075		
Comparative Tracking Index	600	--	V	IEC 60112
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.028 in (0.71 mm)	V-2	--		IEC 60695-11-10, -20
0.06 in (1.5 mm)	V-2	--		
Oxygen Index	28	--	%	ISO 4589-2
FMVSS Flammability	DNI	--		FMVSS 302
Fogging				ISO 6452
F-value (refraction)	99	--	%	
G-value (condensate)	1.0E-4	--	g	
Optical	Dry	Conditioned	Unit	Test Method
Gloss (60°)	90	--		ISO 2813
Haze	0.020	--	%	ISO 14782



Fill Analysis	Dry	Conditioned	Unit	
Melt Density	0.980	--	g/cm ³	
Ejection Temperature	374 (190)	--	°F (°C)	
Specific Heat Capacity of Melt	0.667 (2790)	--	Btu/lb/°F (J/kg/°C)	
Thermal Conductivity of Melt	1.1 (0.16)	--	Btu·in/hr/ft ² /°F (W/m/K)	
Additional Information	Dry	Conditioned	Unit	Test Method
Emission of Organic Compounds	5.00	--	µgC/g	VDA 277
Odor	3.00	--		VDA 270

Injection	Dry (English)	Dry (SI)
Drying Temperature	176 °F	80 °C
Drying Time - Desiccant Dryer	2.0 to 4.0 hr	2.0 to 4.0 hr
Suggested Max Moisture	0.20 %	0.20 %
Processing (Melt) Temp	536 to 572 °F	280 to 300 °C
Melt Temperature, Optimum	554 °F	290 °C
Mold Temperature	122 to 194 °F	50 to 90 °C
Mold Temperature, Optimum	158 °F	70 °C
Holding Pressure	7250 to 14500 psi	50.0 to 100 MPa
Drying Recommended	yes	yes
Hold Pressure Time	4.00 s/mm	4.00 s/mm
Maximum Screw Tangential Speed	945 in/min	24 m/min
Extrusion	Dry (English)	Dry (SI)
Drying Temperature	176 °F	80 °C
Drying Time	4.0 to 6.0 hr	4.0 to 6.0 hr
Melt Temperature	527 to 554 °F	275 to 290 °C
Extrusion Melt Temperature, Optimum	545 °F	285 °C

Notes

¹ Typical properties: these are not to be construed as specifications.

² 0% RH

³ 10°C/min



Where to Buy

Supplier

DuPont Performance Polymers
Wilmington, DE USA
Telephone: 302-999-4592
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Distributor

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