

Zytel® MT409AHS BK010

NYLON RESIN

Product Description

Zytel® MT409AHS BK010 is a Medium Toughened, high performance, heat stabilized, black polyamide 66 resin having good stiffness and improved knit line strength with superior toughness and processability.

General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Additive	• Heat Stabilizer	• Impact Modifier	
Features	• Fuel Resistant • Good Chemical Resistance • Good Heat Aging Resistance • Good Impact Resistance	• Good Thermal Aging Resistance • Good Toughness • Good UV Resistance • Grease Resistant	• Heat Stabilized • Impact Modified • Oil Resistant • Ultrasonic Weldable
Uses	• Appliance Components • Automotive Applications	• Electrical/Electronic Applications • Industrial Applications	• Sporting Goods
RoHS Compliance	• Contact Manufacturer		
Appearance	• Black		
Processing Method	• Injection Molding		
Part Marking Code (ISO 11469)	• >PA66-I<		
Resin ID (ISO 1043)	• PA66-I		
Product Category	• Toughened Resins	• Unreinforced Resins	• UV Resistant/Weatherable Resins

Physical	Dry	Conditioned	Unit	Test Method
Specific Gravity				
--	1.11	--		ASTM D792
--	1.11	--	g/cm ³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow: 0.0787 in	1.7	--	%	
Flow: 0.0787 in	1.7	--	%	
Water Absorption				
73°F, 24 hr	1.3	--	%	ASTM D570
73°F, 24 hr	0.90	--	%	ISO 62

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Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus				
73°F	392000	156000	psi	ASTM D638
-40°F	405000	460000	psi	ISO 527-2
32°F	354000	352000	psi	ISO 527-2
73°F	348000	156000	psi	ISO 527-2
140°F	258000	92700	psi	ISO 527-2
176°F	130000	74400	psi	ISO 527-2
212°F	92800	70900	psi	ISO 527-2
248°F	69000	64300	psi	ISO 527-2
302°F	51900	49900	psi	ISO 527-2
Tensile Stress				
Yield, 73°F	8700	6090	psi	ISO 527-2
73°F	8850	6090	psi	ASTM D638
50% Strain, -40°F	13600	12500	psi	ISO 527-2
50% Strain, 32°F	10200	8120	psi	ISO 527-2
50% Strain, 73°F	8850	6240	psi	ISO 527-2
50% Strain, 140°F	6240	5220	psi	ISO 527-2
50% Strain, 176°F	5370	4790	psi	ISO 527-2
50% Strain, 212°F	4790	4500	psi	ISO 527-2
50% Strain, 248°F	4210	3920	psi	ISO 527-2
50% Strain, 302°F	3920	3480	psi	ISO 527-2
Tensile Strain				
Yield, -40°F	9.7	8.7	%	ISO 527-2
Yield, 32°F	7.1	22	%	ISO 527-2
Yield, 73°F	6.0	27	%	ISO 527-2
Yield, 140°F	45	31	%	ISO 527-2
Yield, 176°F	> 50	30	%	ISO 527-2
Yield, 212°F	> 50	> 50	%	ISO 527-2
Yield, 248°F	> 50	> 50	%	ISO 527-2
Yield, 302°F	> 50	> 50	%	ISO 527-2
Break, 73°F	35	36	%	ASTM D638
Nominal Tensile Strain at Break				ISO 527-2
-40°F	--	> 50	%	
32°F	28	> 50	%	
73°F	29	> 50	%	
140°F	> 50	> 50	%	
176°F	> 50	> 50	%	
212°F	> 50	> 50	%	
248°F	> 50	> 50	%	
302°F	> 50	> 50	%	
Flexural Modulus				
73°F	348000	154000	psi	ASTM D790
73°F	319000	156000	psi	ISO 178
Impact				
Charpy Notched Impact Strength				ISO 179/1eA
-40°F	5.7	--	ft-lb/in ²	
73°F	9.0	--	ft-lb/in ²	
Notched Izod Impact				
73°F	2.5	--	ft-lb/in	ASTM D256
-40°F	5.2	--	ft-lb/in ²	ISO 180/1A
-22°F	6.2	--	ft-lb/in ²	ISO 180/1A
-4°F	6.2	--	ft-lb/in ²	ISO 180/1A
73°F	8.1	--	ft-lb/in ²	ISO 180/1A

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Hardness	Dry	Conditioned	Unit	Test Method
Rockwell Hardness (R-Scale)	113	69		ASTM D785
Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
66 psi, Unannealed	369	--	°F	ISO 75-2/B
264 psi, Unannealed	149	--	°F	ISO 75-2/A
Melting Temperature				
-- ²	504	--	°F	ISO 11357-3
--	500	--	°F	ASTM D3418
CLTE				ASTM E831 ISO 11359-2
Flow: -40 to 73°F	0.000050	--	in/in/°F	
Flow: -22 to 86°F	0.000050	--	in/in/°F	
Flow: 73 to 131°F	0.000056	--	in/in/°F	
Flow: 131 to 320°F	0.000067	--	in/in/°F	
Transverse: -40 to 73°F	0.000056	--	in/in/°F	
Transverse: -22 to 86°F	0.000056	--	in/in/°F	
Transverse: 73 to 131°F	0.000056	--	in/in/°F	
Transverse: 131 to 320°F	0.000078	--	in/in/°F	
Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	3.0E+15	4.7E+11	ohms	IEC 60093
Volume Resistivity	2.0E+15	9.7E+11	ohm-cm	IEC 60093
Relative Permittivity				IEC 60250
73°F, 100 Hz	3.90	9.80		
73°F, 1 MHz	3.70	4.00		
Dissipation Factor				IEC 60250
73°F, 100 Hz	0.0060	0.44		
73°F, 1 MHz	0.013	0.51		
Comparative Tracking Index	525	--	V	IEC 60112
Electric Strength (73°F, 0.0787 in)	640	560	V/mil	IEC 60243-1
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating - UL				UL 94
0.0315 in	HB	--		
0.0591 in	HB	--		
0.118 in	HB	--		
Flammability Classification				IEC 60695-11-10, -20
0.0315 in	HB	--		
0.0591 in	HB	--		
0.118 in	HB	--		
UL	Dry	Conditioned	Unit	Test Method
RTI Str				UL 746
0.0315 in	203	--	°F	
0.0591 in	221	--	°F	
0.118 in	230	--	°F	
RTI Imp				UL 746
0.0315 in	149	--	°F	
0.0591 in	221	--	°F	
0.118 in	221	--	°F	
RTI Elec				UL 746
0.0315 in	266	--	°F	
0.0591 in	266	--	°F	
0.118 in	266	--	°F	
Comparative Tracking Index (CTI) (0.118 in)	600	--	V	UL 746

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UL	Dry	Conditioned	Unit	Test Method
Comparative Tracking Index (CTI) (PLC)	PLC 0	--		UL 746

Injection	Dry Unit
Drying Temperature	176 °F
Drying Time	2.0 to 4.0 hr
Suggested Max Moisture	< 0.20 %
Processing (Melt) Temp	518 to 572 °F
Melt Temperature, Optimum	536 °F
Mold Temperature	122 to 194 °F
Mold Temperature, Optimum	158 °F
Drying Recommended	Yes, if moisture content of resin exceeds recommended level

Notes

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

² 10°C/min

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.

Test temperatures are 23°C unless otherwise stated.

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