

NORYL GTXTM RESIN GTX974

REGION ASIA

DESCRIPTION

NORYL GTX974 resin is a conductive, non-reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This injection moldable grade is optimized to allow for in- or on-line primer-less electrostatic painting. NORYL GTX974 resin exhibits high impact resistance and is an excellent candidate for automotive painted applications such as body panels and fenders.

GENERAL INFORMATION	
Features	Chemical Resistance, Electrically Conductive, Hydrolytic Stability, Low Warpage, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Aesthetics/Visual effects, Dimensional stability, High stiffness/Strength, High temperature resistance, Impact resistant, No PFAS intentionally added
Fillers	Conductive agent
Polymer Types	Polyphenylene Ether + PA (PPE+Nylon)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY	
Automotive	Automotive Exteriors	

TYPICAL PROPERTY VALUES

Revision 20241017

MECHANICAL (¹¹) MPa ASTM D638 Tensile Stress, yld, Type I, 50 mm/min 50 MPa ASTM D638 Tensile Strain, yld, Type I, 50 mm/min 50 MPa ASTM D638 Tensile Strain, yld, Type I, 50 mm/min 50 % ASTM D638 Tensile Strain, brk, Type I, 50 mm/min 2050 MPa ASTM D638 Tensile Modulus, 50 mm/min 80 MPa ASTM D790 Flexural Stress, yld, 1.3 mm/min, 50 mm span 80 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2050 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 45 MPa ISO 527 Tensile Stress, yield, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 40 % ISO 527 Tensile Strain, break, 50 mm/min 75 MPa ISO 527 Tensile Strain, break, 50 mm/min 75 MPa ISO 178 Flexural Modulus, 2 mm/min 75 MPa ISO 178 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Tensile Stress, brk, Type I, 50 mm/min 50 MPa ASTM D638 Tensile Strain, yld, Type I, 50 mm/min 50 % ASTM D638 Tensile Strain, brk, Type I, 50 mm/min 50 % ASTM D638 Tensile Modulus, 50 mm/min 2050 MPa ASTM D638 Flexural Stress, yld, 1.3 mm/min, 50 mm span 80 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2050 MPa ASTM D790 Tensile Stress, yleid, 50 mm/min 40 MPa ASTM D790 Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, break, 50 mm/min 40 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 527 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 Flexural Modulus, 2 mm/min 1900 MPa SO 178 Impact (1) 15 15 15 Index (1) 15 15 15 Index (1) 15 15 15 15 Index (1) 15	MECHANICAL (1)			
Tensile Strain, yld, Type I, 50 mm/min 5 % ASTM D638 Tensile Strain, brk, Type I, 50 mm/min 50 % ASTM D638 Tensile Modulus, 50 mm/min 2050 MPa ASTM D638 Flexural Stress, yld, 1.3 mm/min, 50 mm span 80 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2050 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 527 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 Flexural Modulus, 2 mm/min 1900 MPa ASTM D256 Impact (1) Impact (2) Impact (2) Impact (2) ASTM D256 Instrumented Dart Impact Total Energy, 23°C 10 J/m ASTM D256 Instrumented Bot 10°4 + 23°C 17 Impact	Tensile Stress, yld, Type I, 50 mm/min	55	MPa	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min 50 % ASTM D638 Tensile Modulus, 50 mm/min 2050 MPa ASTM D638 Flexural Stress, yld, 1.3 mm/min, 50 mm span 80 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2050 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Strain, yield, 50 mm/min 45 MPa ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 527 Flexural Stress, yield, 2 mm/min 2000 MPa ISO 178 Flexural Modulus, 2 mm/min 1900 MPa ISO 178 Flexural Modulus, 2 mm/min 1900 MPa ISO 178 Impact (**) 1900 MPa ASTM D256 Impact (**) 1900 J/m ASTM D256 Izod Impact, notched, 23°C 120 J/m ASTM D256 Izot Impact, notched, 30°C 120 J/m ASTM D256 Izot Impact, notched	Tensile Stress, brk, Type I, 50 mm/min	50	MPa	ASTM D638
Tensile Modulus, 50 mm/min 2050 MPa ASTM D638 Flexural Stress, yld, 1.3 mm/min, 50 mm span 80 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2050 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 527 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 Flexural Modulus, 2 mm/min 1900 MPa ISO 178 IMPACT (1) V ISO 178 ISO 178 Izod Impact, notched, 23°C 180 J/m ASTM D256 Izod Impact, notched, 30°C 1 ASTM D256 Iso 180/180 Izod Impact, notched, 80°10°4 + 23°C 17 KJ/m² ISO 180/1A Izod Impact, notched, 80°10°4 + 30°C 10 KJ/m² ISO 180/1A	Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span 80 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2050 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 178 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 Flexural Modulus, 2 mm/min 1900 MPa ISO 178 Impact (1) ASTM D256 Impact (1) Impact (1) <td>Tensile Strain, brk, Type I, 50 mm/min</td> <td>50</td> <td>%</td> <td>ASTM D638</td>	Tensile Strain, brk, Type I, 50 mm/min	50	%	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span 2050 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 527 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 Flexural Modulus, 2 mm/min 1900 MPa ISO 178 Impact (1) Iso 178 Iso 178 Izod Impact, notched, 23°C 180 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J/m ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 17 KJ/m² ISO 180/1A Izod Impact, notched 80*10*4 + 23°C 10 KJ/m² ISO 180/1A	Tensile Modulus, 50 mm/min	2050	MPa	ASTM D638
Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 178 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 Impact (1) Iso 178 ISO 178 Izod Impact, notched, 23°C 180 J/m ASTM D256 Izod Impact, notched, -30°C 120 J/m ASTM D256 Izod Impact, notched 80*10*4 + 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 - 30°C 10 kJ/m² ISO 180/1A	Flexural Stress, yld, 1.3 mm/min, 50 mm span	80	MPa	ASTM D790
Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 178 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 IMPACT (¹) WPa ISO 178 Izod Impact, notched, 23°C 180 J/m ASTM D256 Izod Impact, notched, -30°C 120 J/m ASTM D256 Izod Impact, notched 80*10*4 + 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 - 30°C 10 kJ/m² ISO 180/1A	Flexural Modulus, 1.3 mm/min, 50 mm span	2050	MPa	ASTM D790
Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 527 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 IMPACT (1) WPa ISO 178 Izod Impact, notched, 23°C 180 J/m ASTM D256 Izod Impact, notched, -30°C 120 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 - 30°C 10 kJ/m² ISO 180/1A	Tensile Stress, yield, 50 mm/min	50	MPa	ISO 527
Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2000 MPa ISO 527 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 IMPACT (¹) WPa ISO 178 Izod Impact, notched, 23°C 180 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D256 Izod Impact, notched 80°10°4 + 23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 - 30°C 10 kJ/m² ISO 180/1A	Tensile Stress, break, 50 mm/min	45	MPa	ISO 527
Tensile Modulus, 1 mm/min 2000 MPa ISO 527 Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 Impact ISO 178 ISO 178 Impact Iso Impact, notched, 23°C Iso Impact, notched, 23°C Impact, notched, 23°C Impact, notched, 23°C Iso Impact, notched, 23°C Iso Impact, notched, 23°C Impact, notched, 23°C <td>Tensile Strain, yield, 50 mm/min</td> <td>4</td> <td>%</td> <td>ISO 527</td>	Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Flexural Stress, yield, 2 mm/min 75 MPa ISO 178 Flexural Modulus, 2 mm/min 1900 MPa ISO 178 IMPACT ⁽¹⁾ V V Izod Impact, notched, 23°C 180 J/m ASTM D256 Izod Impact, notched, -30°C 120 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80°10°4 + 23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 - 30°C 10 kJ/m² ISO 180/1A	Tensile Strain, break, 50 mm/min	30	%	ISO 527
Flexural Modulus, 2 mm/min 1900 MPa ISO 178 IMPACT (¹) Izod Impact, notched, 23°C 180 J/m ASTM D256 Izod Impact, notched, -30°C 120 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80°10°4 + 23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 - 30°C 10 kJ/m² ISO 180/1A	Tensile Modulus, 1 mm/min	2000	MPa	ISO 527
IMPACT (1) Izod Impact, notched, 23°C I 80 J/m ASTM D256 Izod Impact, notched, -30°C 120 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 - 30°C 10 kJ/m² ISO 180/1A	Flexural Stress, yield, 2 mm/min	75	MPa	ISO 178
Izod Impact, notched, 23°C 180 J/m ASTM D256 Izod Impact, notched, -30°C 120 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 - 30°C 10 kJ/m² ISO 180/1A	Flexural Modulus, 2 mm/min	1900	MPa	ISO 178
Izod Impact, notched, -30°C 120 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80°10°4 +23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 10 kJ/m² ISO 180/1A	IMPACT (1)			
Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4+23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4-30°C 10 kJ/m² ISO 180/1A	Izod Impact, notched, 23°C	180	J/m	ASTM D256
Izod Impact, notched 80*10*4 +23°C 17 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 -30°C 10 kJ/m² ISO 180/1A	Izod Impact, notched, -30°C	120	J/m	ASTM D256
Izod Impact, notched 80*10*4-30°C 10 kJ/m² ISO 180/1A	Instrumented Dart Impact Total Energy, 23°C	50	J	ASTM D3763
	Izod Impact, notched 80*10*4 +23°C	17	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 18 kJ/m² ISO 179/1eA	Izod Impact, notched 80*10*4 -30°C	10	kJ/m²	ISO 180/1A
	Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	18	kJ/m²	ISO 179/1eA



PROPERTIES				
THERMAL (**) Vicat Softening Temp, Rate 8J90 180 **C ASTM D1525 CTL, 40°C to 40°C, flow £80 **C ASTM D843 CTL, 40°C to 40°C, flow £60 1/**C ASTM E831 CTL, 40°C to 40°C, flow £60 1/**C ASTM E831 CTL, 23°C to 60°C, flow £60 1/**C \$60 11839-2 CTL, 23°C to 60°C, flow £60 1/**C \$60 1839-2 Ball Pressure Test, 125°C+/-22°C £855 **C \$60 306 Vicat Softening Temp, Rate 8J30 20 **C \$60 306 Vicat Softening Temp, Rate 8J120 180 **C \$60 306 Vicat Softening Temp, Rate 8J120 180 **C \$60 306 Vicat Softening Temp, Rate 8J120 180 **C \$60 306 Vicat Softening Temp, Rate 8J120 180 **C \$60 306 Vicat Softening Temp, Rate 8J120 180 **C \$60 306 Vicat Softening Temp, Rate 8J120 180 **C \$60 306 Will Soft Soft Soft Soft Soft Soft Soft Soft	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Victo Softening Temp, Rate 8/50 880 °C ASTM D612SC HDT, 0.45 MPa, 3.2 mm, unanealed 98.05 1°C ASTM D681 CTE, 40°C to 40°C, flow 1.604 1°C ASTM B831 CTE, 40°C to 40°C, flow 1.604 1°C ASTM B831 CTE, 23°C to 60°C, flow 1.604 1°C S0 1339-2 Ball Pressure Fact, 125°C 47-2°C 0.8585 1°C 150.306 Vicat Softening Temp, Rate 8/50 175 °C 150.306 Vicat Softening Temp, Rate 8/150 175 °C 150.306 Mol Softinka 150 150.306 380 *C Mol Softinka 150 150.306 380 *C Mold Shrinkage, flow 3.2 mm² <th>Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm</th> <td>10</td> <td>kJ/m²</td> <td>ISO 179/1eA</td>	Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m²	ISO 179/1eA
HDT, 0.45 MPa, 3.2 mm, unannealed 180 "C ASTM 5648 CTE, 40°C to 40°C, 160w 1,604 1,°C ASTM 5831 CTE, 23°C to 40°C, 160w 1,604 1,°C SO 11359 2 CTE, 23°C to 60°C, 160w 1,604 1,°C SO 11359 2 CTE, 23°C to 60°C, 160w 1,90 1,90 SO 11359 2 Ball Pressure Text, 125°C+ 2°C 80555 - 60 500 50 Vicat Softening Temp, Rate 8/50 20 C 80 306 Vicat Softening Temp, Rate 8/120 175 C 80 306 HDT/Be, 0.45MPa Edgew 120°10°4 sp=100m 175 C 80 306 HDT/Be, 0.45MPa Edgew 120°10°4 sp=100m 1,08 C 80 306 Mold Shrinkage, 160w, 3.2 mm ⁽²⁾ 1.08 2 ASTM 0792 Mold Shrinkage, 160w, 3.2 mm ⁽²⁾ 1.01 3 ASIM cmethod Mold Shrinkage, 160w, 3.2 mm ⁽²⁾ 1.02 3 ASIM cmethod Molt Flow Rate, 280°C/5 Ng 1.08 3 NO 62 Molt Flow Rate, 280°C/5 Ng 1.09 2 NO 62 <	THERMAL (1)			
CT. 4.0°C to 40°C, flow 9.605 1/°C ASTME831 CT. 4.0°C to 40°C, flow 1.604 1/°C 1501 1359-2 CTE, 23°C to 60°C, flow 9.605 1/°C 1501 1359-2 EBJ Pressure Test, 125°C+1-2°C 9.858-2 - 10 50 11359-2 Vicat Softening Temp, Rate A/50 20 °C 50 306 Vicat Softening Temp, Rate B/120 180 °C 50 306 Vicat Softening Temp, Rate B/120 180 °C 50 306 Vicat Softening Temp, Rate B/120 180 °C 50 306 Vicat Softening Temp, Rate B/120 180 °C 50 306 Vicat Softening Temp, Rate B/120 180 °C 50 306 Mot Shrinkage, 16w, 24 500 180 °C \$80 50 Mot Shrinkage, 16w, 3.2 mm (°) 1.0-1.4 \$80 A810 method Mel Shrinkage, 16w, 3.2 mm (°) 1.0-1.4 \$10 \$81 method Mel Shrinkage, 16w, 3.2 mm (°) 1.0-2 \$10 \$81 method Wester Absorption, (23°C fost Rit) 1.0 \$10 \$10	Vicat Softening Temp, Rate B/50	180	°C	ASTM D1525
CTC, 40°C to 40°C, slow 1.604 1/°C ASTME831 CTC, 23°C to 60°C, flow 1.604 1/°C 1011359-2 Ball Pressure Test, 125°C+1,2°C 9.605 1/°C 1011359-2 Ball Pressure Test, 125°C+1,2°C 9858 - 10 3096 Vicat Softening Temp, Rate 8/50 20 10 300 10 300 Vicat Softening Temp, Rate 8/120 175 °C 10 306 PUTJRE, 0.480ME Edgew 120°04 sp=100mm 175 °C 10 306 PUTJRE, 0.480ME Edgew 120°04 sp=100mm 175 °C 10 75 PUTJRE, 0.480ME Edgew 120°04 sp=100mm 175 °C 30 30 PUTJRE, 0.480ME Edgew 120°04 sp=100mm 175 °C 30 75 Mold Shrinkage, xifox 19 1.82 *STM 792 *STM 792 Mold Shrinkage, flow, 3.2 mm ⁽²⁾ 1.91 4.91 *STM 792 *STM 792 Mold Shrinkage, xifoxy 3.2 mm ⁽²⁾ 1.92 1.92 *STM 792 *S	HDT, 0.45 MPa, 3.2 mm, unannealed	180	°C	ASTM D648
CTC, 23°C to 60°C, filow 1.60 1.7°C 151359-2 CTC, 23°C to 60°C, filow 9.60 1,°C 151359-2 Ball Pressur Est, 125°C+ / 2°C 20 1.60 150 306 Vicat Softening Temp., Rate A/150 20 160 306 160 306 Vicat Softening Temp., Rate B/120 175 °C 150 306 PMDT/Be, 0.45MR at Bel P120 175 °C 150 306 PMDT/Be, 0.45MR at Bel P120 175 °C 150 306 PMDT/Be, 0.45MR at Bel P120 175 °C 150 306 PMDT/Be, 0.45MR at Bel P120 175 °C 150 50 56 PMDT/Be, 0.45MR at Bel P120 180 2 351 56 <t< td=""><th>CTE, -40°C to 40°C, flow</th><td>9.E-05</td><td>1/°C</td><td>ASTM E831</td></t<>	CTE, -40°C to 40°C, flow	9.E-05	1/°C	ASTM E831
CT. 2.3°C to 60°C, sfriow 9.505 1°C 1013 159-2 Ball Pressure Test, 125°C+ 2°C 925S - 16.0698-10-2 Vicat Softening Temp, Rate B J50 175 °C 90.00 Vicat Softening Temp, Rate B J50 180 °C 90.00 BID JB, 0.45MPa Edgew 120°10°4 sp=100ma 175 °C 90.00 HOTJB, 0.45MPa Edgew 120°10°4 sp=100ma 175 °C 90.00 90.00 HOTJB, 0.45MPa Edgew 120°10°4 sp=100ma 175 °C 90.00 90.0	CTE, -40°C to 40°C, xflow	1.E-04	1/°C	ASTM E831
Ball Pressure Test, 12°C+/-2°C MSSES □ □C 6009-10-20 Vicat Softening Temp, Rate A/50 200 ○ 05 036 Vicat Softening Temp, Rate B/120 175 ○ 05 036 HOTJ Be, OASMPA Edgew 120°10°4 sp=100mm 180 ○ 05 75/Be PHYSICAL** Specific Gravity 1.08 □ AST M792 Mold Shrinkage, flow, 3.2 mm (a) 1.01 3.04 AST M792 Mold Shrinkage, flow, 3.2 mm (a) 1.02 1.04 3.04 AST M792 Mold Shrinkage, flow, 3.2 mm (a) 1.04 3.06 AST M792 AST M792 Mold Shrinkage, flow, 3.2 mm (a) 1.02 1.04 3.00 AST M792 AST M792 Mold Shrinkage, flow, 3.2 mm (a) 1.02 1.02 3.00 AST M792 AST M792 Mold Shrinkage, flow, 3.2 mm (a) 1.02 3.00 3.00 4.00 3.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00 4.00	CTE, 23°C to 60°C, flow	1.E-04	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50 20 Co 30 Co 30 Vicat Softening Temp, Rate B/100 150 Co 30 Co 30 Vicat Softening Temp, Rate B/120 180 Co 30 Co 30 Div/JBo, OASMNa Edgew 120°10°4 sp=100mm 175 Co 30 Co 70 Co 70 BOLD JEW SCALL TEMP SET STATE STAT	CTE, 23°C to 60°C, xflow	9.E-05	1/°C	ISO 11359-2
Vical Softening Temp, Rate B/SO 175 °C ISO 306 Vical Softening Temp, Rate B/120 180 °C ISO 306 HDT/Be, O.45MPa Edgew 120°10°4 sp=100mm 175 °C ISO 306 PHYSICAL ⁽¹⁾ V ISO 75/Be PHYSICAL ⁽¹⁾ V SAFIM D792 Brodig Gravity 1.08 - ASM D792 Mold Shrinkage, flow, 3.2 mm ⁽²⁾ 1.3 - 1.6 % ASME Cmethod Mold Shrinkage, xlow, 3.2 mm ⁽²⁾ 1.0 - 1.4 % ASME Cmethod Mold Shrinkage, xlow, 3.2 mm ⁽²⁾ 1.0 - 1.4 % ASME Cmethod Melt Flow Rate, 280°C/5.0 kgf 1.0 - 8 y 10 - 128 ISO 62 Water Absorption (23°C/saturated) 4.2 % 10 - 138 ISO 62 Molisture Absorption (23°C/saturated) 1.2 % 10 - 138 ISO 62 Melt Volume Rate, MVR at 280°C/5.0 kg 1.2 % M 10 - 138 ISO 62 1.0 1.0 2.0 M 1.0 1.0 1.0 1.0	Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicas Softening Temp, Rate B/120 180 ° C 180 306 HDT/Be, 0.45MPa Edgew 120°10°4 sp=100mm 175 ° C 180 75/Be PHYSICAL ⁽¹⁾ Specific Gravity 1.08 × C X5TM 7092 Mold Shrinkage, flow, 3.2 mm (2) 1.3 − 1.6 % C X5M CIM CRED Mold Shrinkage, xflow, 3.2 mm (2) 1.0 − 1.0 % C X5M CIM CRED Melt Flow Rate, 280°C/5.0 kgf 10 9/cm² ISO 1183 Water Absorption, (23°C/sok rate) 4.2 % C 150 €2 Melt Volume Rate, MVR at 280°C/5.0 kg 1.2 % D 50 €2 Melt Flow Resistivity 1.2 % D 50 €2 ELECTRICAL (1) % 150 €2 ELECTRICAL (1) % 50 €2 ELECTRICAL (1) % 50 €2 Use Resistivity 50 €2 50 €2 VI RECORDING (4) % 50 €2 Use Recorded, 94th B Flame Class Rating 10 − 12 60 €2 10 €2 Drying Temperature 2 − 3 60 €2 10 €2 Maximum Moistur	Vicat Softening Temp, Rate A/50	230	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120°10°4 sp=100mm 175 °C SO 75/Be PHYSICAL.** FYSICAL.** V SPECIFIC Gravity 1.08 - ASTM D792 Mold Shrinkage, flow, 3.2 mm (²) 1.3 – 1.6 % ASIC method Mold Shrinkage, xflow, 3.2 mm (²) 1.1 – 1.4 % ASIC method Melt Flow Rate, 280°C/5.0 kg 10 g/m³ ASTM D1238 Water Absorption, (23°C/saturated) 4.2 % 50 62-1 Molsture Absorption (23°C/sokgh) 1.2 % 50 62-1 Melt Volume Rate, MVR at 280°C/5.0 kg 1.2 % 50 133 ELECTRICAL.** √ \$ 50 133 ELECTRICAL.** √ \$ 50 133 ELECTRICAL TO √ 2 \$ 50 133 ELECTRICAL TO √ √ \$ 50 133 \$ ELECTRICAL TO √ √ \$ 4 \$ \$ 6 2 \$ \$ \$ 1 \$ \$ \$ \$ \$	Vicat Softening Temp, Rate B/50	175	°C	ISO 306
PHYSICAL. ⁽¹⁾ Specific Gravity 1.08 - 0 ASTM D792 Mold Shrinkage, flow, 3.2 mm. ⁽²⁾ 1.3 – 1.6 \$ 0 ABIC method Mold Shrinkage, xflow, 3.2 mm. ⁽²⁾ 1.1 – 1.4 \$ 0 ABIC method Met Flow Rate, 280°C/5.0 kgf 10 g/cm³ ASTM D1238 Density 1.08 g/cm³ 150 113 Water Absorption (23°C/ saturated) 2.2 5 0 150 62 Melk Volume Rate, MVR at 280°C/5.0 kg 1.2 3 0 10 0 Mel Experimentation (23°C saturated) 1.2 3 0 10 0 Mel Volume Rate, MVR at 280°C/5.0 kg 1.2 3 0 30 133 Mel Volume Rate, MVR at 280°C/5.0 kg 1.2 3 0 30 133 BLECTRICAL. ⁽¹⁾ 3 0 3 0 3 0 Volume Resistivity 1.5 3 0 3 0 4 0 MECTHONIA (1) 3 0 3 0 4 0 4 0 MECTHONIA (1) 3 0 3 0 4 0 4 0 4 0 4 0 4 0 4 0 4 0	Vicat Softening Temp, Rate B/120	180	°C	ISO 306
Specific Gravity 1.08 - 1.04 ASTM 0792 Mold Shrinkage, rifow, 3.2 mm (²) 1.3 – 1.6 % SABIC method Mold Shrinkage, xifow, 3.2 mm (²) 1.1 – 1.4 % SABIC method Meth Flow Rate, 280°C/5.0 kgf 10 g/m³ STM 01238 Density 1.08 g/m³ SIO 1183 Water Absorption (23°C/ 50% RH) 4.2 % 150 62-1 Moisture Absorption (23°C/ 50% RH) 1.2 x³ 150 62-1 Moisture Absorption (23°C/ 50% RH) 1.2 x³ 150 62-1 Moisture Absorption (23°C/ 50% RH) 1.2 x³ 100 133 133 Meth Volume Rate, MVR at 280°C/5.0 kg 1.2 x³ 100 133 133 133 134 140 140 150 62-1 140 150 62-1 15	HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	175	°C	ISO 75/Be
Mold Shrinkage, flow, 3.2 mm (²)1.3 - 1.6%ABIC methodMold Shrinkage, xflow, 3.2 mm (²)1.1 - 1.4%SABIC methodMeth Flow Rate, 280°C/5.0 kgf10g/m²ASTM D1238Density1.08g/m²ISO 1183Water Absorption (23°C/5 aturated)4.2%ISO 62-1Moisture Absorption (23°C/5 0 kg RH)1.2xm² l' 0 minISO 62-1Meth Volume Rate, MVR at 280°C/5.0 kg12xm² l' 0 minISO 1133ELECTRICAL (¹)1.5 + 0.3 - 1.5 + 0.4xm² l' 0 minSABIC methodVolume Resistivity1.5 + 0.3 - 1.5 + 0.4xm² l' 0 minXm² l' 0 minUR ceoprized, 94HB Flame Class Rating1.5 + 0.3 - 1.5 + 0.4xm² l' 0 minXm² l' 0 minDiving Temperature1.00 - 120xm² l' 1.5 - 1.5 + 0.5xm² l' 1.5 + 0.5 + 0.5 + 0.5 + 0.5Drying Time2.3 - 0.3 - 1.0xm² l' 1.5 + 0.5	PHYSICAL (1)			
Mold Shrinkage, xflow, 3.2 mm²1.1-1.4%SAIC methodMelt Flow Rate, 280°C/5.0 kgf109/10 minATM D1238Density1.08g/cm³ISO 1183Water Absorption (23°C/ saturated)4.2%150 62-1Moisture Absorption (23°C/ 50% RH)1.2%150 62-1Melt Volume Rate, MVR at 280°C/5.0 kg12∞∞¹/10 minISO 133ELECTRICAL (¹)TTXVolume Resistivity1.540 - 1.540∞∞ASIC methodU Recognized, 94HB Flame Class Rating1.52mmU.94Drying Temperature100 - 120°CTDrying Time2-3HrsTMaximum Moisture Content0.07%TMaximum Moisture Content200 - 320°CTMozel Temperature200 - 320°CTPront - Zone 3 Temperature200 - 320°CTMiddle - Zone 2 Temperature200 - 280°CTRear - Zone 1 Temperature200 - 280°CTHopper Temperature60 - 80°CT	Specific Gravity	1.08	-	ASTM D792
Melt Flow Rate, 280°C/5.0 kgf 108 g/m³n ASTM D1238 Density 1.08 g/m³n ISO 1183 Water Absorption, (23°C/saturated) 4.2 \$ 506 62-1 Moisture Absorption (23°C/50%RH) 1.2 \$ 10 m³n/10 min \$ 50 62-1 Melt Volume Rate, MVR at 280°C/5.0 kg 12 m³n/10 min \$ 50 133 ELECTRICAL (1) > 10 m³n/10 min \$ \$ 10 m²n/10 min \$ </th <th>Mold Shrinkage, flow, 3.2 mm (2)</th> <th>1.3 – 1.6</th> <th>%</th> <th>SABIC method</th>	Mold Shrinkage, flow, 3.2 mm (2)	1.3 – 1.6	%	SABIC method
Density IO.88 g/cm³ ISO 1183 Water Absorption, (23°C/saturated) 4.2 % ISO 62-1 Moisture Absorption (23°C/50% RH) 1.2 cm³/l O min ISO 133 Melt Volume Rate, MVR at 280°C/5.0 kg 12 cm³/l O min ISO 133 ELECTRICAL (¹) User Call of the	Mold Shrinkage, xflow, 3.2 mm (2)	1.1 – 1.4	%	SABIC method
Water Absorption, (23°C/saturated) 4.2 % ISO 62-1 Moisture Absorption (23°C / 50% RH) 1.2 % ISO 62 Melt Volume Rate, MVR at 280°C/5.0 kg 12 m³/10 min ISO 1133 ELECTRICAL (¹) Volume Resistivity 1.E+03 − 1.E+04 Ω.cm SABIC method FLAME CHARACTERISTICS (³) U. 9 ABIC method UI. Recognized, 94HB Flame Class Rating ≥1.5 mm U. 94 INJECTION MOLDING (³) U. 94 P Drying Temperature 2 − 3 Hrs P Maximum Moisture Content 0.07 % P Mozzle Temperature 290 − 320 ° P Nozzle Temperature 290 − 320 ° P Front - Zone 3 Temperature 290 − 320 ° P Middle - Zone 2 Temperature 280 − 300 ° P Mer - Zone 1 Temperature 260 − 280 ° P Moper Temperature 60 − 80 ° P	Melt Flow Rate, 280°C/5.0 kgf	10	g/10 min	ASTM D1238
Moisture Absorption (23° / 50% RH)1.2%50 62Melt Volume Rate, MVR at 280°C/5.0 kg12cm³/10 min50 1133ELECTRICAL (1)Volume Resistivity1.E+03 − 1.E+04TAMACTERISTICS (3)U. Recognized, 94HB Flame Class Rating≥ 1.5mmU. 94INJECTION MOLDING (4)Drying Temperature100 − 120Drying Time2 − 3HrsMaximum Moisture ContentMozzle Temperature290 − 320Nozzle Temperature290 − 320Font - Zone 3 Temperature290 − 320Middle - Zone 2 Temperature290 − 320Middle - Zone 2 Temperature290 − 320Middle - Zone 2 Temperature290 − 320Bear - Zone 1 Temperature200 − 280Bear - Zone 1 Temperature200 − 80Hopper Temperature60 − 80	Density	1.08	g/cm³	ISO 1183
Melt Volume Rate, MVR at 280°C/5.0 kg12cm³/10 minISO 1133ELECTRICAL (¹)I.E+03 − 1.E+04Ω.cmSABIC methodVolume ResistivityI.E+03 − 1.E+04Ω.cmSABIC methodFLAME CHARACTERISTICS (³)UL Recognized, 94HB Flame Class Rating≥ 1.5mmU.94INJECTION MOLDING (⁴)CDrying Temperature100 − 120°CDrying Time2 − 3HrsMaximum Moisture Content0.07%Nozzle Temperature290 − 320°CNozzle Temperature290 − 320°CFront - Zone 3 Temperature290 − 320°CMiddle - Zone 2 Temperature280 − 300°CMer - Zone 1 Temperature260 − 280°CHopper Temperature60 − 80°C	Water Absorption, (23°C/saturated)	4.2	%	ISO 62-1
ELECTRICAL (1) Volume Resistivity 1.E+03 - 1.E+04 2.C.c.c.c.c.c.c.c.c.c.c.c.c.c.c.c.c.c.c.	Moisture Absorption (23°C / 50% RH)	1.2	%	ISO 62
Volume Resistivity1.E+03 – 1.E+04Ω.cmSABIC methodFLAME CHARACTERISTICS (3)UL Recognized, 94HB Flame Class Rating21.5mmUL 94INJECTION MOLDING (4)Drying Temperature100 – 120°CDrying Time2 – 3HrsMaximum Moisture Content0.07%Melt Temperature290 – 320°CNozzle Temperature280 – 310°CFront - Zone 3 Temperature290 – 320°CMiddle - Zone 2 Temperature280 – 300°CRear - Zone 1 Temperature260 – 280°CHopper Temperature60 – 80°C	Melt Volume Rate, MVR at 280°C/5.0 kg	12	cm³/10 min	ISO 1133
FLAME CHARACTERISTICS (3) UL Recognized, 94HB Flame Class Rating \$1.5 mm UL 94 INJECTION MOLDING (4) Drying Temperature 100 - 120 °C Drying Time 2-3 Hrs Maximum Moisture Content 290 - 320 °C Nozzle Temperature 290 - 320 °C Front - Zone 3 Temperature 290 - 320 °C Middle - Zone 2 Temperature 280 - 300 °C Rear - Zone 1 Temperature 260 - 280 °C Hopper Temperature 600 - 80 °C	ELECTRICAL (1)			
NIACTION MOLDING (4) Drying Temperature 100 − 120 °C Drying Time 2−3 Maximum Moisture Content 290 − 320 °C Melt Temperature 290 − 320 °C Nozzle Temperature 290 − 320 °C Front - Zone 3 Temperature 290 − 320 °C Middle - Zone 2 Temperature 290 − 320 °C Middle - Zone 2 Temperature 290 − 320 °C Middle - Zone 1 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 3 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 3 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 3 Temperat	Volume Resistivity	1.E+03 – 1.E+04	Ω.cm	SABIC method
NIACTION MOLDING (4) Drying Temperature 100 − 120 °C Drying Time 2−3 Maximum Moisture Content 290 − 320 °C Melt Temperature 290 − 320 °C Nozzle Temperature 290 − 320 °C Front - Zone 3 Temperature 290 − 320 °C Middle - Zone 2 Temperature 290 − 320 °C Middle - Zone 2 Temperature 290 − 320 °C Middle - Zone 1 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 3 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 3 Temperature 390 − 320 °C Middle - Zone 2 Temperature 390 − 320 °C Middle - Zone 3 Temperat	FLAME CHARACTERISTICS (3)			
Drying Temperature 100 – 120 °C Drying Time 2 – 3 Hrs Maximum Moisture Content 0.07 % Melt Temperature 290 – 320 °C Nozzle Temperature 280 – 310 °C Front - Zone 3 Temperature 290 – 320 °C Middle - Zone 2 Temperature 280 – 300 °C Rear - Zone 1 Temperature 260 – 280 °C Hopper Temperature 60 – 80 °C		≥1.5	mm	UL 94
Drying Temperature 100 – 120 °C Drying Time 2 – 3 Hrs Maximum Moisture Content 0.07 % Melt Temperature 290 – 320 °C Nozzle Temperature 280 – 310 °C Front - Zone 3 Temperature 290 – 320 °C Middle - Zone 2 Temperature 280 – 300 °C Rear - Zone 1 Temperature 260 – 280 °C Hopper Temperature 60 – 80 °C	INJECTION MOLDING (4)			
Drying Time 2 – 3 Hrs Maximum Moisture Content 0.07 % Melt Temperature 290 – 320 °C Nozzle Temperature 280 – 310 °C Front - Zone 3 Temperature 290 – 320 °C Middle - Zone 2 Temperature 280 – 300 °C Rear - Zone 1 Temperature 260 – 280 °C Hopper Temperature 60 – 80 °C		100 – 120	°C	
Maximum Moisture Content 0.07 % Melt Temperature 290 – 320 °C Nozzle Temperature 280 – 310 °C Front - Zone 3 Temperature 290 – 320 °C Middle - Zone 2 Temperature 280 – 300 °C Rear - Zone 1 Temperature 260 – 280 °C Hopper Temperature 60 – 80 °C		2 – 3	Hrs	
Nozzle Temperature 280 – 310 °C Front - Zone 3 Temperature 290 – 320 °C Middle - Zone 2 Temperature 280 – 300 °C Rear - Zone 1 Temperature 260 – 280 °C Hopper Temperature 60 – 80 °C	Maximum Moisture Content	0.07	%	
Front - Zone 3 Temperature 290 – 320 °C Middle - Zone 2 Temperature 280 – 300 °C Rear - Zone 1 Temperature 260 – 280 °C Hopper Temperature 60 – 80 °C	Melt Temperature	290 – 320	°C	
Front - Zone 3 Temperature 290 – 320 °C Middle - Zone 2 Temperature 280 – 300 °C Rear - Zone 1 Temperature 260 – 280 °C Hopper Temperature 60 – 80 °C	Nozzle Temperature	280 – 310	°C	
Middle - Zone 2 Temperature 280 – 300 °C Rear - Zone 1 Temperature 260 – 280 °C Hopper Temperature 60 – 80 °C		290 – 320	°C	
Hopper Temperature 60 − 80 °C	Middle - Zone 2 Temperature		°C	
•••	Rear - Zone 1 Temperature	260 – 280	°C	
Mold Temperature 100 – 120 °C	Hopper Temperature	60 – 80	°C	
· · · · · · · · · · · · · · · · · · ·	Mold Temperature	100 – 120	°C	

⁽¹⁾ The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

⁽²⁾ Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

⁽³⁾ UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

⁽⁴⁾ Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.



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