



NORYL™ Resin LTA5020

Americas: COMMERCIAL

NORYL LTA5020 is an unfilled, injection moldable grade. Designed for improved long term heat aging, this resin also uses non-chlorinated, non-brominated FR additives to achieve a V0 UL94 rating. NORYL LTA5020 is only available in a dark grey/black and may be an excellent material candidate for application requiring electrically insulating properties.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	810	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	610	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	4.8	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	18	%	ASTM D 638
Tensile Modulus, 5 mm/min	29000	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1200	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	28200	kgf/cm ²	ASTM D 790
Tensile Stress, yield, 50 mm/min	83	MPa	ISO 527
Tensile Stress, break, 50 mm/min	80	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5	%	ISO 527
Tensile Strain, break, 50 mm/min	6	%	ISO 527
Tensile Modulus, 1 mm/min	2840	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	131	MPa	ISO 178
Flexural Modulus, 2 mm/min	2910	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	142	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	9	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	3	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	174	cm-kgf	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	35	kJ/m ²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	34	kJ/m ²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	4	kJ/m ²	ISO 180/1A



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IMPACT			
Izod Impact, notched 80*10*4 -30°C	3	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	3	kJ/m ²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	137	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	128	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	112	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	134	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	116	°C	ASTM D 648
CTE, -40°C to 40°C, flow	8.3E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	8.9E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	8.3E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.9E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Ball Pressure Test, approximate maximum	135	°C	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	135	°C	ISO 306
Vicat Softening Temp, Rate B/120	137	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	115	°C	ISO 75/Af
Relative Temp Index, Elec	130	°C	UL 746B
Relative Temp Index, Mech w/impact	120	°C	UL 746B
Relative Temp Index, Mech w/o impact	130	°C	UL 746B
PHYSICAL			
Specific Gravity	1.15	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 280°C/5.0 kgf	10	g/10 min	ASTM D 1238
Density	1.15	g/cm ³	ISO 1183



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PHYSICAL			
Water Absorption, (23°C/sat)	0.2	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	10	cm ³ /10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	3.7E+16	Ohm-cm	ASTM D 257
Surface Resistivity	4.2E+14	Ohm	ASTM D 257
Dielectric Strength, in oil, 1.6 mm	30	kV/mm	ASTM D 149
Dielectric Strength, in oil, 3.2 mm	18.6	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	2.87	-	ASTM D 150
Relative Permittivity, 1 MHz	2.76	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.025	-	ASTM D 150
Dissipation Factor, 1 MHz	0.003	-	ASTM D 150
Hot Wire Ignition {PLC}	1	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	0	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
Comparative Tracking Index	275	V	IEC 60112
FLAME CHARACTERISTICS			
UL Compliant, 94V-0 Flame Class Rating (3)(4)	1.5	mm	UL 94 by SABIC-IP
UL Compliant, 94-5VA Rating (3)(4)	3	mm	UL 94 by SABIC-IP
Glow Wire Flammability Index 960°C, passes at	1.5	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.5 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	800	°C	IEC 60695-2-13
UV-light, water exposure/immersion	f1	-	UL 746C



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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	105 - 110	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	275 - 305	°C
Nozzle Temperature	275 - 305	°C
Front - Zone 3 Temperature	265 - 305	°C
Middle - Zone 2 Temperature	255 - 300	°C
Rear - Zone 1 Temperature	245 - 295	°C
Mold Temperature	70 - 100	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	20 - 100	rpm
Shot to Cylinder Size	30 - 70	%
Vent Depth	0.038 - 0.051	mm