NORYL™ RESIN ENV105

REGION EUROPE

DESCRIPTION

NORYL™ ENV105 resin is a non-reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). This impact modified extrusion grade exhibits high heat resistance with a Vicat B/120 of 115C and carries a UL 94 flame rating of V1 at 1.5mm along with NFP 92501-1 ratings of M1 and M2. NORYL ENV105 resin may be an excellent candidate for extruded electrical applications.

TYPICAL PROPERTY VALUES

Revision 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yield, 50 mm/min	50	MPa	ISO 527
Tensile Stress, break, 50 mm/min	40	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Tensile Strain, break, 50 mm/min	10	%	ISO 527
Tensile Modulus, 1 mm/min	2000	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	60	MPa	ISO 178
Flexural Modulus, 2 mm/min	1700	MPa	ISO 178
Ball Indentation Hardness, H358/30	90	MPa	ISO 2039-1
IMPACT			
Izod Impact, notched 80*10*4 +23°C	25	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	20	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	30	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	20	kJ/m²	ISO 179/1eA
THERMAL			
Thermal Conductivity	0.23	W/m-°C	ISO 8302
CTE, 23°C to 80°C, flow	8.E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	1.E-04	1/°C	ISO 11359-2
Ball Pressure Test, 75°C +/- 2°C	PASSES	-	IEC 60695-10-2
Ball Pressure Test, approximate maximum	105	°C	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	110	°C	ISO 306
Vicat Softening Temp, Rate B/50	110	°C	ISO 306
Vicat Softening Temp, Rate B/120	115	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	110	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	80	°C	ISO 75/Ae
Relative Temp Index, Elec [1]	65	°C	UL 746B
Relative Temp Index, Mech w/impact [1]	65	°C	UL 746B
Relative Temp Index, Mech w/o impact [1]	65	°C	UL 746B
PHYSICAL			
Mold Shrinkage on Tensile Bar, flow	0.5 – 0.7	%	SABIC method
Density	1.1	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.15	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	7	cm³/10 min	ISO 1133

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ELECTRICAL			
Volume Resistivity	1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ohm	IEC 60093
Dielectric Strength, in oil, 0.8 mm	33	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	26	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.7	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.01	-	IEC 60250
Dissipation Factor, 1 MHz	0.003	-	IEC 60250
Relative Permittivity, 50/60 Hz	2.8	-	IEC 60250
Comparative Tracking Index (UL) {PLC}	0	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥3	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2	≥1.5	mm	UL 746A
FLAME CHARACTERISTICS (1)			
UL Yellow Card Link	E45329-236747	-	-
UL Recognized, 94V-1 Flame Class Rating	≥1.5	mm	UL 94
M1 Flame Class Rating	1	mm	NF P 92501
M2 Flame Class Rating	2	mm	NF P 92501
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Oxygen Index (LOI)	32	%	ISO 4589
PROFILE EXTRUSION			
Drying Temperature	80 – 90	°C	
Drying Time	2 – 3	hrs	
Melt Temperature	240 – 260	°C	
Barrel - Zone 1 Temperature	220 – 240	°C	
Barrel - Zone 2 Temperature	230 – 250	°C	
Barrel - Zone 3 Temperature	240 – 260	°C	
Barrel - Zone 4 Temperature	240 – 260	°C	
Hopper Temperature	40 – 60	°C	
Adapter Temperature	240 – 260	°C	
Die Temperature	240 – 260	°C	
Calibrator Temperature	50 – 70	°C	

(1) 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.

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