NORYL™ Resin FE1410PW

REGION EUROPE

DESCRIPTION

NORYL FE1410PW resin is a 10% glass fiber reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This injection moldable material is FC EU, FDA food contact compliant*, NSF/ANSI 61, ACS, WRAS and KTW-WBGL listing** for global potable water use for specific colors is available. NORYL FE1410PW resin exhibits excellent long term hydrolytic stability, very low moisture absorption, heat / hot water resistance and is an excellent candidate for a variety of water management applications such as pump housings, impellers, shower/faucet, membrane housings and valves.

* Restrictions may apply in the case of applications involving fatty foods. Please review the food contact declaration for details.
** Potable water listing is color dependent

GENERAL INFORMATION	
Features	Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Corrosivity, Low Moisture Absorption, Food contact, Potable water safe, Dimensional stability, High stiffness/Strength, No PFAS intentionally added
Fillers	Glass Fiber (Total fluorine >50ppm only from inorganic fluorine)
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Building and Construction	Water Management
Hygiene and Healthcare	Personal and Professional Hygiene

TYPICAL PROPERTY VALUES

Revision 20241015

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, brk, Type I, 5 mm/min	94	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2.8	%	ASTM D638
Tensile Modulus, 5 mm/min	4770	MPa	ASTM D638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	135	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	4860	MPa	ASTM D790
Tensile Stress, break, 5 mm/min	94	MPa	ISO 527
Tensile Strain, break, 5 mm/min	2.7	%	ISO 527
Tensile Modulus, 1 mm/min	4930	MPa	ISO 527
Flexural Stress, break, 2 mm/min	135	MPa	ISO 178
Flexural Modulus, 2 mm/min	4880	MPa	ISO 178
IMPACT [1]			
Izod Impact, unnotched, 23°C	230	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	225	J/m	ASTM D4812
Izod Impact, notched, 23°C	35	J/m	ASTM D256
Izod Impact, notched, -30°C	35	J/m	ASTM D256
Izod Impact, unnotched 80*10*4 +23°C	13	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	13	kJ/m²	ISO 180/1U

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 +23°C	4	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	4	kJ/m²	ISO 180/1A
Charpy Impact, notched, 23°C	3	kJ/m²	ISO 179/2C
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	14	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	14	kJ/m²	ISO 179/1eU
THERMAL (1)			
HDT, 1.82 MPa, 3.2mm, unannealed	127	°C	ASTM D648
CTE, -40°C to 40°C, flow	3.E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	146	°C	ISO 306
Vicat Softening Temp, Rate B/120	140	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	135	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	126	°C	ISO 75/Ae
Relative Temp Index, Elec (2)	65	°C	UL 746B
Relative Temp Index, Mech w/impact (2)	65	°C	UL 746B
Relative Temp Index, Mech w/o impact (2)	65	°C	UL 746B
PHYSICAL (1)			
Moisture Absorption, (50% RH, Equilibrium)	0.06	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm (3)	0.2 – 0.4	%	SABIC method
Density	1.13	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.2	%	ISO 62-1
Melt Volume Rate, MVR at 280°C/10.0 kg	32	cm³/10 min	ISO 1133
FLAME CHARACTERISTICS (2)			
UL Yellow Card Link	E45329-101521743	-	-
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
INJECTION MOLDING (4)			
Drying Temperature	100 – 120	°C	
Drying Time	2 – 4	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	280 – 300	°C	
Nozzle Temperature	280 – 300	°C	
Front - Zone 3 Temperature	290 – 310	°C	
Middle - Zone 2 Temperature	270 – 290	°C	
Rear - Zone 1 Temperature	250 – 270	°C	
Hopper Temperature	60 – 80	°C	
Mold Temperature	80 – 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) 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.

(3) 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.

(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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