Ryton® R-4-220BL

Syensqo - Polyphenylene Sulfide

General Information

Product Description

Ryton® R-4-220NA and R-4-220BL 40% glass fiber reinforced polyphenylene sulfide compounds provide enhanced mechanical strength after constant or repeated exposure to high temperature water.

General

Filler / Reinforcement	• Glass Fiber, 40% Filler by Weight
Features	• Good Strength
Uses	• Automotive Applications
RoHS Compliance	• RoHS Compliant
Appearance	• Black
Forms	• Pellets
Processing Method	• Injection Molding

Properties [1]

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.68		ASTM D792
Molding Shrinkage			ISO 294-4
Across Flow : 0.126 in	0.50	%	
Flow : 0.126 in	0.20	%	
Water Absorption (24 hr, 73°F)	0.021	%	ISO 62
Water Absorption (Saturation, 73°F)	0.14	%	Internal Method
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus			ISO 527-2
--	2.32E+6	psi	
-- [2]	2.34E+6	psi	
Tensile Stress			
--	25400	psi	ISO 527-2
--	24900	psi	ASTM D638
-- [2]	25500	psi	ISO 527-2
Tensile Strain			
Break	1.5	%	ISO 527-2
Break	1.5	%	ASTM D638
Break [2]	1.5	%	ISO 527-2
Flexural Modulus	2.10E+6	psi	ASTM D790
Flexural Modulus	2.03E+6	psi	ISO 178
Flexural Strength	36000	psi	ASTM D790
Flexural Stress	36300	psi	ISO 178
Compressive Strength	39900	psi	ASTM D695
Poisson's Ratio	0.37		ISO 527

Ryton® R-4-220BL

Syensqo - Polyphenylene Sulfide

Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			ISO 179
--	3.8	ft·lb/in²	
-- [2]	3.6	ft·lb/in²	
Charpy Unnotched Impact Strength			ISO 179
--	21	ft·lb/in²	
-- [2]	20	ft·lb/in²	
Notched Izod Impact (0.125 in)	1.5	ft·lb/in	ASTM D256
Notched Izod Impact Strength	3.8	ft·lb/in²	ISO 180/A
Unnotched Izod Impact (0.125 in)	9.0	ft·lb/in	ASTM D4812
Unnotched Izod Impact Strength	14	ft·lb/in²	ISO 180
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness			ASTM D785
M-Scale	103		
R-Scale	122		
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load			ASTM D648
264 psi, Unannealed	509	°F	
Melting Temperature	536	°F	ISO 11357-3
CLTE - Flow			ASTM E831
-58 to 122°F	8.3E-6	in/in/°F	
212 to 392°F	8.3E-6	in/in/°F	
CLTE - Transverse			ASTM E831
-58 to 122°F	2.2E-5	in/in/°F	
212 to 392°F	4.7E-5	in/in/°F	
Thermal Conductivity	2.2	Btu·in/hr/ft²/°F	Internal Method
UL Temperature Rating	392 to 428	°F	UL 746B
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity	1.0E+16	ohms	ASTM D257
Volume Resistivity	1.0E+16	ohms·cm	ASTM D257
Dielectric Strength	550	V/mil	ASTM D149
Dielectric Constant			ASTM D150
77°F, 1 kHz	3.80		
77°F, 1 MHz	3.80		
Dissipation Factor			ASTM D150
77°F, 1 kHz	2.0E-3		
77°F, 1 MHz	3.0E-3		
Arc Resistance	125	sec	ASTM D495
Comparative Tracking Index (CTI)	175	V	IEC 60112
Comparative Tracking Index (CTI)	PLC 4		UL 746A
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating (0.031 in)	V-0		UL 94
Oxygen Index	45	%	ASTM D2863
Additional Information	**Nominal Value**	**Unit**	
Hydrolytic Stability [3]			
Tensile Strength Retained	> 80	%	
Weight Gain	< 1.0	%	

Ryton® R-4-220BL

Syensqo - Polyphenylene Sulfide

Processing Information		
Injection	**Nominal Value**	**Unit**
Drying Temperature	275 to 302	°F
Drying Time	2.0 to 4.0	hr
Rear Temperature	563 to 599	°F
Middle Temperature	581 to 617	°F
Front Temperature	599 to 653	°F
Nozzle Temperature	581 to 617	°F
Processing (Melt) Temp	608 to 626	°F
Mold Temperature	275 to 302	°F

Notes

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

[2] Conditioned data is meant to simulate 23°C 50% RH equilibrium values. Conditioning of specimens was achieved per ISO 1110 by exposing specimens for 11 days, 70°C and 62% RH.

[3] Test specimens aged 1000 hours in water at 140°C (284°F)