VALOX™ FR RESIN ENH4550

REGION AMERICAS

DESCRIPTION

VALOX ENH4550 is a 25% glass reinforced, non-chlorinated/brominated flame retardant Polybutylene Terephthalate (PBT) injection moldable grade with excellent chemical resistance. It has a UL94V0@0.30mm and 5VA@2.0mm flame rating. This is a good candidate for a variety of applications needing a sustainable FR PBT solution.

TYPICAL PROPERTY VALUES

Revision 20260722

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 5 mm/min	115	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	115	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	2	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2	%	ASTM D638
Tensile Modulus, 5 mm/min	10300	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	165	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	8800	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	112	MPa	ISO 527
Tensile Stress, break, 5 mm/min	112	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2	%	ISO 527
Tensile Strain, break, 5 mm/min	2	%	ISO 527
Tensile Modulus, 1 mm/min	10400	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	175	MPa	ISO 178
Flexural Strain, break, 2 mm/min	2	%	ISO 178
Flexural Modulus, 2 mm/min	9200	MPa	ISO 178
IMPACT [1]			
Izod Impact, unnotched, 23°C	550	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	525	J/m	ASTM D4812
Izod Impact, notched, 23°C	70	J/m	ASTM D256
Izod Impact, notched, -30°C	65	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	6	J	ASTM D3763
Izod Impact, unnotched 80*10*4 +23°C	40	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	35	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	8	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	8	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m²	ISO 179/1eA
Charpy Impact, notched, 23°C	8	kJ/m²	ISO 179/2C
Charpy Impact, notched, -30°C	8	kJ/m²	ISO 179/2C
Charpy Impact, unnotched, 23°C	45	kJ/m²	ISO 179/2C
Charpy Impact, unnotched, -30°C	40	kJ/m²	ISO 179/2C
THERMAL [1]			
Vicat Softening Temp, Rate A/50	215	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	205	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	220	°C	ASTM D648

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HDT, 1.82 MPa, 3.2mm, unannealed	205	°C	ASTM D648
CTE, -40°C to 40°C, flow	2.43E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	6.3E-05	1/°C	ASTM E831
CTE, -40°C to 150°C, flow	2.2E-05	1/°C	ASTM E831
CTE, -40°C to 150°C, xflow	7.7E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	2.8E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.1E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, flow	2.2E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	9.1E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	220	°C	ISO 306
Vicat Softening Temp, Rate B/50	207	°C	ISO 306
Vicat Softening Temp, Rate B/120	208	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	220	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	207	°C	ISO 75/Af
PHYSICAL [1]			
Specific Gravity	1.52	-	ASTM D792
Mold Shrinkage on Tensile Bar, flow [2]	0.1 – 0.5	%	SABIC method
Mold Shrinkage, flow, 3.2 mm [2]	0.1 – 0.5	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow [2]	0.6 – 1.2	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [2]	0.5 – 1.1	%	SABIC method
Melt Flow Rate, 250°C/5.0 kgf	25	g/10 min	ASTM D1238
Density	1.52	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.23	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 250°C/5.0 kg	18	cm³/10 min	ISO 1133
Melt Viscosity, 250°C, 1500 sec-1	210	Pa-s	ISO 11443
ELECTRICAL [1]			
Volume Resistivity	1.E+15	Ω.cm	ASTM D257
Dielectric Strength, in air, 3.2 mm	21	kV/mm	ASTM D149
Dielectric Strength, in oil, 3.2 mm	20	kV/mm	ASTM D149
Volume Resistivity	1.E+15	Ω.cm	IEC 60093
Comparative Tracking Index	300	V	IEC 60112
FLAME CHARACTERISTICS [3]			
Glow Wire Ignitability Temperature, 3.0 mm, by VDE	775	°C	IEC 60695-2-13
INJECTION MOLDING [4]			
Drying Temperature	110 – 120	°C	
Drying Time	2 – 4	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	245 – 260	°C	
Nozzle Temperature	230 – 255	°C	
Front - Zone 3 Temperature	240 – 260	°C	
Middle - Zone 2 Temperature	235 – 250	°C	
Rear - Zone 1 Temperature	230 – 240	°C	
Hopper Temperature	40 – 60	°C	

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Mold Temperature	40 – 100	°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.,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.
(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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