

# VALOX™ FR RESIN V4860HR

REGION ASIA

## DESCRIPTION

VALOX V4860HR Polybutylene Terephthalate (PBT) resin is a 30% glass fiber reinforced, impact modified, improved hydrolytic stability, injection moldable grade. This non-chlorinated, non-brominated flame retardant PBT has a UL V0 rating. VALOX V4860HR resin is a general purpose resin that is an excellent candidate for a wide variety of applications.

## TYPICAL PROPERTY VALUES

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	116	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	114	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	2.2	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	2.3	%	ASTM D 638
Tensile Modulus, 5 mm/min	9750	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	174	MPa	ASTM D 790
Flexural Stress, brk, 1.3 mm/min, 50 mm span	2	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	6740	MPa	ASTM D 790
Tensile Stress, yield, 5 mm/min	111	MPa	ISO 527
Tensile Stress, break, 5 mm/min	110	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2.1	%	ISO 527
Tensile Strain, break, 5 mm/min	2.1	%	ISO 527
Tensile Modulus, 1 mm/min	9440	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	183	MPa	ISO 178
Flexural Stress, break, 2 mm/min	182	MPa	ISO 178
Flexural Strain, break, 2 mm/min	2.9	%	ISO 178
Flexural Modulus, 2 mm/min	7870	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C	90	J/m	ASTM D 256
Izod Impact, notched, -30°C	74	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	13	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	10	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	8	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	176	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	197	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	221	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	205	°C	ASTM D 648
CTE, -40°C to 95°C, flow	2.35E-05	1/°C	ASTM E 831
CTE, -40°C to 95°C, xflow	1.14E-04	1/°C	ASTM E 831
CTE, 23°C to 80°C, flow	2.28E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	1.19E-04	1/°C	ISO 11359-2
Ball Pressure Test, approximate maximum	75	°C	IEC 60695-10-2

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Vicat Softening Temp, Rate B/50	176	°C	ISO 306
Vicat Softening Temp, Rate B/120	175	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	188	°C	ISO 75/Af
<b>PHYSICAL</b>			
Specific Gravity	1.64	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.18 – 0.21	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm	0.75 – 0.94	%	SABIC method
Melt Flow Rate, 250°C/5.0 kgf	17.8	g/10 min	ASTM D 1238
Density	1.64	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.19	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 250°C/5.0 kg	12	cm <sup>3</sup> /10 min	ISO 1133
<b>FLAME CHARACTERISTICS</b>			
UL Compliant, 94V-0 Flame Class Rating	0.8	mm	UL 94 by SABIC-IP
<b>INJECTION MOLDING</b>			
Drying Temperature	120	°C	
Drying Time	3 – 4	hrs	
Drying Time (Cumulative)	12	hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	230 – 260	°C	
Nozzle Temperature	240 – 260	°C	
Front - Zone 3 Temperature	240 – 260	°C	
Middle - Zone 2 Temperature	230 – 250	°C	
Rear - Zone 1 Temperature	220 – 240	°C	
Mold Temperature	60 – 120	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	20 – 100	rpm	
Shot to Cylinder Size	30 – 70	%	
Vent Depth	0.025 – 0.038	mm	

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