

**Product Texts**

VALOX ENH4560 is a 30% glass reinforced, non-chlorinated/brominated flame retardant Polybutylene Terephthalate (PBT) injection moldable grade with excellent chemical resistance. It has a UL94V0@0.80mm and 5VA@3.0mm flame rating. This is a good candidate for a variety of applications needing a sustainable FR PBT solution.

UL Yellow Card Link [F45329-100522223](https://www.ul.com/yellow-card/F45329-100522223)

<b>Processing/Physical Characteristics</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
<b>ISO Data</b>			
Melt volume-flow rate, MVR	16	cm <sup>3</sup> /10min	ISO 1133
Temperature	250	°C	-
Load	5	kg	-
<b>ASTM Data</b>			
Melt Flow Index, MFI	23	g/10min	ASTM D 1238
Temperature	265	°C	-
Load	5	kg	-
<b>Mechanical properties</b>			
<b>ISO Data</b>			
Tensile Modulus	11000	MPa	ISO 527
Yield stress	108	MPa	ISO 527
Yield strain	2	%	ISO 527
Stress at break	108	MPa	ISO 527
Strain at break	2	%	ISO 527
Flexural modulus	10000	MPa	ISO 178
Izod impact strength, +23°C, 4mm	37	kJ/m <sup>2</sup>	ISO 180/1U
Izod impact strength, -30°C, 4mm	37	kJ/m <sup>2</sup>	ISO 180/1U
Izod notched impact strength, +23°C, 4mm	8	kJ/m <sup>2</sup>	ISO 180/1A
Izod notched impact strength, -30°C, 4mm	8	kJ/m <sup>2</sup>	ISO 180/1A
Rockwell hardness	R 120	-	ISO 2039-2
Ball indentation hardness	142	MPa	ISO 2039-1
<b>ASTM Data</b>			
Tensile Modulus	11000	MPa	ASTM D 638
Tensile Strength at Yield	105	MPa	ASTM D 638
Tensile Strength at Break	105	MPa	ASTM D 638
Elongation at Yield	2	%	ASTM D 638
Elongation at Break	2	%	ASTM D 638
Flexural Modulus	9300	MPa	ASTM D 790
Izod Impact notched, 1/8 in	72	J/m	ASTM D 256
Izod Impact notched, Low-Temperature	65	J/m	ASTM D 256
Temperature	-30	°C	-
Izod Impact unnotched, 1/8 in	570	J/m	ASTM D 256
<b>Thermal properties</b>			
<b>ISO Data</b>			
Temp. of deflection under load, 1.80 MPa	205	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	225	°C	ISO 75-1/-2
Vicat softening temperature, A	220	°C	ISO 306
Vicat softening temperature, B	200	°C	ISO 306
Vicat softening temperature, 120°C/h 50N	205	°C	ISO 306
Burning behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	0.8	mm	-
Burning behav. 5V at thickness h	5VB	class	IEC 60695-11-20
Thickness tested	3.0	mm	-
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (GWIT)	750	°C	IEC 60695-2-13
GWIT - thickness tested (1)	1	mm	-
Glow Wire Ignition Temperature (GWIT)	750	°C	IEC 60695-2-13

**VALOX™ FR Resin ENH4560 - Europe**

PBT-GF30

Saudi Basic Industries Corporation (SABIC)

GWIT - thickness tested (2)	2	mm	-
Glow Wire Ignition Temperature (GWIT)	800	°C	IEC 60695-2-13
GWIT - thickness tested (3)	3	mm	-

**ASTM Data**

DTUL @ 66 psi	223	°C	ASTM D 648
DTUL @ 264 psi	205	°C	ASTM D 648
Vicat Temperature	200	°C	ASTM D 1525

Electrical properties	Value	Unit	Test Standard
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**ISO Data**

Relative permittivity, 1MHz	3.8	-	IEC 62631-2-1
Dissipation factor, 1MHz	1400	E-4	IEC 62631-2-1
Volume resistivity	1E12	Ohm*m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	32	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112

**ASTM Data**

Dielectric Strength, Short Time	18	kV/mm	ASTM D 149
Dissipation Factor, 1 MHz	0.14	-	ASTM D 150
Dielectric Constant, 1 MHz	3.8	-	ASTM D 150
Volume Resistivity	1E14	Ohm*cm	ASTM D 257

Other properties	Value	Unit	Test Standard
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Water absorption	0.23	%	Sim. to ISO 62
Humidity absorption	0.09	%	Sim. to ISO 62
Density	1560	kg/m <sup>3</sup>	ISO 1183
Density	1560	kg/m <sup>3</sup>	ASTM D 792

Processing Recommendation Injection Molding	Value	Unit	Test Standard
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Pre-drying - Temperature	110 - 120	°C	-
Pre-drying - Time	2 - 4	h	-
Processing humidity	≤0.02	%	-
Melt temperature	245 - 260	°C	-
Mold temperature	40 - 100	°C	-
Feed temperature	40 - 60	°C	-
Zone 1	230 - 240	°C	-
Zone 2	235 - 250	°C	-
Zone 3	240 - 260	°C	-

**Characteristics****Processing**

Injection Molding

**Additives**

Flame retarding agent

**Special Characteristics**

Flame retardant

**Chemical Resistance**

General Chemical Resistance

**Regional Availability**

Europe