

**Valox\* Resin 176HP**  
**Americas: COMMERCIAL**

Unreinforced, FDA compliant neat PBT resin for fibers. Natural Color Only, Not intended for injection molding.

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 50 mm/min	500	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	500	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	2	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	2	%	ASTM D 638
Tensile Modulus, 5 mm/min	25400	kgf/cm <sup>2</sup>	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	850	kgf/cm <sup>2</sup>	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	24300	kgf/cm <sup>2</sup>	ASTM D 790
Tensile Stress, yield, 50 mm/min	45	MPa	ISO 527
Tensile Stress, break, 50 mm/min	45	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	1.8	%	ISO 527
Tensile Strain, break, 50 mm/min	1.8	%	ISO 527
Tensile Modulus, 1 mm/min	2600	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	81	MPa	ISO 178
Flexural Modulus, 2 mm/min	2290	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, unnotched, 23°C	90	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	2	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	50	cm-kgf	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	35	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	2	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
HDT, 0.45 MPa, 3.2 mm, unannealed	104	°C	ASTM D 648

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23±176.C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.

(5) 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.

Source GMD, last updated:

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TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>THERMAL</b>			
HDT, 1.82 MPa, 3.2mm, unannealed	48	°C	ASTM D 648
CTE, -40°C to 40°C, flow	8.5E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.5E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	178	°C	ISO 306
Vicat Softening Temp, Rate B/120	177	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	113	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	51	°C	ISO 75/Af
<b>PHYSICAL</b>			
Specific Gravity	1.32	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	1.5 - 1.8	%	SABIC Method
Mold Shrinkage, xflow, 3.2 mm (5)	1.6 - 2	%	SABIC Method
Melt Flow Rate, 250°C/1.2 kgf	127	g/10 min	ASTM D 1238
Melt Viscosity	350	poise	SABIC Method
Density	1.31	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.08	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate, MVR at 250°C/1.2 kg	127	cm <sup>3</sup> /10 min	ISO 1133
Melt Volume Rate, MVR at 250°C/2.16 kg	231	cm <sup>3</sup> /10 min	ISO 1133

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
<b>Compounding Extrusion</b>		
Drying Temperature	110 - 120	°C
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0	%
Melt Temperature	245 - 260	°C
Barrel - Zone 1 Temperature	200 - 230	°C
Barrel - Zone 2 Temperature	240 - 255	°C
Barrel - Zone 3 Temperature	240 - 275	°C
Barrel - Zone 4 Temperature	240 - 275	°C
Adapter Temperature	240 - 275	°C
Die Temperature	240 - 275	°C
Waterbath Temperature	25 - 35	°C

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