VALOX™ RESIN VX5022

REGION EUROPE

DESCRIPTION

VALOX VX5022 is a 20% glass fibre reinforced PBT+PC blend with low warpage characteristics. This grade is 5021 with reduced warpage.

TYPICAL PROPERTY VALUES

Revision 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	125	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	125	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Modulus, 5 mm/min	7300	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	145	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	5800	MPa	ASTM D 790
Tensile Stress, yield, 5 mm/min	110	MPa	ISO 527
Tensile Stress, break, 5 mm/min	110	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	3	%	ISO 527
Tensile Strain, break, 5 mm/min	3	%	ISO 527
Tensile Modulus, 1 mm/min	7100	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	150	MPa	ISO 178
Flexural Stress, break, 2 mm/min	150	MPa	ISO 178
Flexural Strain, break, 2 mm/min	3	%	ISO 178
Flexural Modulus, 2 mm/min	6300	MPa	ISO 178
Ball Indentation Hardness, H358/30	205	MPa	ISO 2039-1
Hardness, Rockwell R	122	-	ISO 2039-2
IMPACT			
Charpy Impact, unnotched, 23°C	55	kJ/m²	ISO 179/2C
Charpy Impact, unnotched, -30°C	50	kJ/m²	ISO 179/2C
Izod Impact, unnotched, 23°C	650	J/m	ASTM D 4812
Izod Impact, unnotched, -30°C	645	J/m	ASTM D 4812
Izod Impact, notched, 23°C	80	J/m	ASTM D 256
Izod Impact, notched, 0°C	80	J/m	ASTM D 256
Izod Impact, notched, -30°C	80	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	65	J	ASTM D 3763
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	7	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 0°C	7	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	6	kJ/m²	ISO 179/1eA
Charpy Impact, notched, 23°C	9	kJ/m²	ISO 179/2C
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m²	ISO 179/1eA

© 2019 Copyright by SABIC. All rights reserved

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy Impact, notched, -30°C	9	kJ/m²	ISO 179/2C
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	40	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	40	kJ/m²	ISO 179/1eU
THERMAL			
Vicat Softening Temp, Rate A/50	200	°C	ASTM D 1525
Vicat Softening Temp, Rate B/50	145	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	180	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	120	°C	ASTM D 648
CTE, -40°C to 40°C, flow	4.E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	1.E-04	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	2.49E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	6.87E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, flow	4.E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	1.E-04	1/°C	ISO 11359-2
CTE, 23°C to 80°C, flow	4.E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	1.E-04	1/°C	ISO 11359-2
CTE, 23°C to 150°C, flow	2.43E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	1.12E-04	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	200	°C	ISO 306
Vicat Softening Temp, Rate B/50	145	°C	ISO 306
Vicat Softening Temp, Rate B/120	145	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	180	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	120	°C	ISO 75/Af
PHYSICAL			
Specific Gravity	1.39	-	ASTM D 792
Filler Content	20	%	ASTM D 229
Mold Shrinkage on Tensile Bar, flow	0.3 – 0.8	%	SABIC method
Mold Shrinkage, flow, 3.2 mm	0.3 – 0.5	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow	0.5 – 0.9	%	SABIC method
Melt Flow Rate, 250°C/2.16 kgf	16	g/10 min	ASTM D 1238
Melt Flow Rate, 265°C/5.0 kgf	50	g/10 min	ASTM D 1238
Melt Flow Rate, 266°C/5.0 kgf	50	g/10 min	ASTM D 1238
Density	1.39	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.1	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 250°C/2.16 kg	13	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 250°C/5.0 kg	28	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 265°C/5.0 kg	40	cm³/10 min	ISO 1133
Melt Viscosity, 260°C, 1500 sec-1	215	Pa-s	ISO 11443
ELECTRICAL			
Volume Resistivity	>1.E+15	Ohm-cm	ASTM D 257
Dielectric Strength, in oil, 0.8 mm	31	kV/mm	ASTM D 149
Dielectric Strength, in oil, 1.6 mm	28	kV/mm	ASTM D 149
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	ASTM D 149

© 2019 Copyright by SABIC. All rights reserved

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Relative Permittivity, 1 MHz	3.3	-	ASTM D 150
Dissipation Factor, 1 MHz	0.014	-	ASTM D 150
Hot Wire Ignition {PLC}	0	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	0	PLC Code	UL 746A
Volume Resistivity	>1.E+16	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>1.E+16	Ohm	IEC 60093
Dielectric Strength, in oil, 0.8 mm	31	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	28	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Relative Permittivity, 100 Hz	3.3	-	IEC 60250
Relative Permittivity, 1 MHz	3.3	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.001	-	IEC 60250
Dissipation Factor, 100 Hz	0.001	-	IEC 60250
Dissipation Factor, 1 MHz	0.014	-	IEC 60250
Comparative Tracking Index	250	V	IEC 60112
Comparative Tracking Index, M	100	V	IEC 60112
Relative Permittivity, 50/60 Hz	3.1	-	IEC 60250
FLAME CHARACTERISTICS			
UL Recognized, 94HB Flame Class Rating	1.5	mm	UL 94
UL Recognized, 94HB Flame Class Rating 2nd value	3	mm	UL 94
Glow Wire Flammability Index 750°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Flammability Index 850°C, passes at	2	mm	IEC 60695-2-12
Oxygen Index (LOI)	23	%	ISO 4589
INJECTION MOLDING			
Drying Temperature	110 – 120	°C	
Drying Time	2 – 4	hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	250 – 270	°C	
Nozzle Temperature	240 – 260	°C	
Front - Zone 3 Temperature	245 – 265	°C	
Middle - Zone 2 Temperature	240 – 255	°C	
Rear - Zone 1 Temperature	230 – 245	°C	
Hopper Temperature	40 – 60	°C	
Mold Temperature	40 – 100	°C	

DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.

© 2019 Copyright by SABIC. All rights reserved