

VALOX™ RESIN 4012G

REGION EUROPE

DESCRIPTION

VALOX 4012G is a 10% glass fiber reinforced PBT injection molding resin with excellent mechanical properties. Applications: connectors. This grade is a 4012 with improved cycle time and ductility.

TYPICAL PROPERTY VALUES

Revision 20190204

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	80	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	80	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	3	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D638
Tensile Modulus, 5 mm/min	4400	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	120	MPa	ASTM D790
Flexural Stress, brk, 1.3 mm/min, 50 mm span	120	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3800	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	80	MPa	ISO 527
Tensile Stress, break, 5 mm/min	80	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	4500	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	125	MPa	ISO 178
Flexural Stress, break, 2 mm/min	120	MPa	ISO 178
Flexural Strain, break, 2 mm/min	5	%	ISO 178
Flexural Modulus, 2 mm/min	3800	MPa	ISO 178
Ball Indentation Hardness, H358/30	110	MPa	ISO 2039-1
Hardness, Rockwell R	120	-	ISO 2039-2
IMPACT			
Charpy Impact, unnotched, 23°C	33	kJ/m²	ISO 179/2C
Charpy Impact, unnotched, -30°C	33	kJ/m²	ISO 179/2C
Izod Impact, unnotched, 23°C	380	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	380	J/m	ASTM D4812
Izod Impact, notched, 23°C	50	J/m	ASTM D256
Izod Impact, notched, 0°C	50	J/m	ASTM D256
Izod Impact, notched, -30°C	50	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	4	J	ASTM D3763
Izod Impact, unnotched 80°10°4 +23°C	35	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80°10°4 -30°C	30	kJ/m²	ISO 180/1U
Izod Impact, notched 80°10°4 +23°C	5	kJ/m²	ISO 180/1A
Izod Impact, notched 80°10°4 0°C	5	kJ/m²	ISO 180/1A
Izod Impact, notched 80°10°4 -30°C	5	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm	7	kJ/m²	ISO 179/1eA

© 2024 Copyright by SABIC. All rights reserved

CHEMISTRY THAT MATTERS™



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy Impact, notched, 23°C	6	kJ/m²	ISO 179/2C
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	6	kJ/m²	ISO 179/1eA
Charpy Impact, notched, -30°C	6	kJ/m²	ISO 179/2C
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	45	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	45	kJ/m²	ISO 179/1eU
THERMAL			
Vicat Softening Temp, Rate A/50	220	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	205	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	215	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	190	°C	ASTM D648
CTE, -40°C to 40°C, flow	6.E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	8.E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	4.63E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.2E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, flow	6.E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	8.E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, flow	4.79E-05	1/°C	ISO 11359-2
CTE, 23°C to 150°C, xflow	2.11E-04	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/50	220	°C	ISO 306
Vicat Softening Temp, Rate B/50	205	°C	ISO 306
Vicat Softening Temp, Rate B/120	200	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	215	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	170	°C	ISO 75/Ae
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	215	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	185	°C	ISO 75/Af
PHYSICAL			
Specific Gravity	1.35	-	ASTM D792
Filler Content	10	%	ASTM D229
Mold Shrinkage on Tensile Bar, flow	0.6 – 0.9	%	SABIC method
Mold Shrinkage, flow, 3.2 mm	0.6 – 1.6	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow	0.7 – 1	%	SABIC method
Melt Flow Rate, 250°C/1.2 kgf	10	g/10 min	ASTM D1238
Melt Flow Rate, 266°C/5.0 kgf	90	g/10 min	ASTM D1238
Density	1.35	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.2	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate, MVR at 250°C/1.2 kg	9	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 250°C/5.0 kg	50	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 265°C/5.0 kg	80	cm³/10 min	ISO 1133
Melt Viscosity, 260°C, 1500 sec-1	110	Pa-s	ISO 11443
ELECTRICAL			
Volume Resistivity	>1.E+15	Ω.cm	ASTM D257
Dielectric Strength, in oil, 0.8 mm	30	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	23	kV/mm	ASTM D149

© 2024 Copyright by SABIC. All rights reserved

CHEMISTRY THAT MATTERS™



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Dielectric Strength, in oil, 3.2 mm	18	kV/mm	ASTM D149
Relative Permittivity, 1 MHz	3.4	-	ASTM D150
Dissipation Factor, 1 MHz	0.015	-	ASTM D150
Volume Resistivity	>1.E+15	Ω.cm	IEC 60093
Surface Resistivity, ROA	>1.E+15	Ω	IEC 60093
Dielectric Strength, in oil, 0.8 mm	30	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	23	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 3.2 mm	18	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	3.4	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.001	-	IEC 60250
Dissipation Factor, 1 MHz	0.015	-	IEC 60250
Comparative Tracking Index	325	V	IEC 60112
Comparative Tracking Index, M	150	V	IEC 60112
Relative Permittivity, 50/60 Hz	3.1	-	IEC 60250
FLAME CHARACTERISTICS			
UL Compliant, 94HB Flame Class Rating	1.6	mm	UL 94 by SABIC-IP
Glow Wire Flammability Index 750°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	750	°C	IEC 60695-2-13
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.

