

Vyncolit® X681

Phenolic

Vyncolit N.V.

Message:

Vyncolit X681 is a glass fiber filled phenolic molding compound, with excellent mechanical properties. It is PTFE (teflon) modified to improve the friction properties.

General Information	
Filler / Reinforcement	Glass fiber reinforced material
Additive	PTFE lubricant
Features	Lubrication
Appearance	Black
Forms	Particle
Processing Method	Resin transfer molding Compression molding Injection molding

Physical	Nominal Value	Unit	Test Method
Density	1.70	g/cm ³	ISO 1183
Molding Shrinkage - Flow	0.30 - 0.40	%	ISO 294-4
Water Absorption (23°C, 24 hr)	0.15	%	ISO 62

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (Injection Molded)	10500	MPa	ISO 527-2
Tensile Stress (Break, Injection Molded)	55.0	MPa	ISO 527-2
Tensile Strain (Break, Injection Molded)	0.65	%	ISO 527-2
Flexural Modulus (Injection Molded)	10000	MPa	ISO 178
Flexural Stress (Injection Molded)	140	MPa	ISO 178

Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (Injection Molded)	3.3	kJ/m ²	ISO 179
Charpy Unnotched Impact Strength	8.3	kJ/m ²	ISO 179

Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
1.8 MPa, not annealed	180	°C	ISO 75-2/A
8.0 MPa, not annealed	160	°C	ISO 75-2/C
Linear thermal expansion coefficient			ASTM E831
Flow	2.5E-5	cm/cm/°C	ASTM E831
Lateral	4.5E-5	cm/cm/°C	ASTM E831

Electrical	Nominal Value	Unit	Test Method
Dielectric Strength	30	kV/mm	IEC 60243-1
Comparative Tracking Index	175	V	IEC 60112

Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
1.60 mm	V-1		UL 94
4.00 mm	V-0		UL 94
Injection	Nominal Value	Unit	
Rear Temperature	60.0	°C	
Middle Temperature	73.9	°C	
Nozzle Temperature	87.8	°C	
Processing (Melt) Temp	98.9 - 116	°C	
Mold Temperature	166 - 188	°C	
Injection Pressure	100 - 248	MPa	
Holding Pressure	30.0 - 89.6	MPa	
Back Pressure	4.83 - 15.2	MPa	
Injection instructions			

Plastication: 50rpm Injection Time: 2 to 8 sec Hold Time: 1 to 5 sec/mm Cure Time, 0.125 in: 5 to 12 sec/mm All ISO properties listed were tested in accordance with ISO 3167 The value listed as Molding Shrinkage, ISO 294-4, was tested in accordance with ISO 2577. ISO Type: PF 2 C3 Powder Density, ISO 60: 0.7 to 0.85 g/cm³ Post Shrinkage, ISO 2577: 0.15 to 0.3% HDT A (1.80 MPa) Unannealed, ISO 75A, Injection Molding: 170 to 190°C CHDT A (8.0 MPa) Unannealed, ISO 75A, Injection Molding: 150 to 170°C CCLTE, Flow (TMA), ASTM E831, Injection Molding: 20 to 30 cm⁻⁶/cm°C CCLTE, Transverse (TMA), ASTM E831, Injection Molding: 40 to 50 cm⁻⁶/cm°C Flexural Strength, ISO 178, Injection Molding: 130 to 150 MPa Flexural Modulus, ISO 178, Injection Molding: 9 to 11 GPa Strain to failure in Flexure, ISO 178, Injection Molding: 1.3 to 1.4% Tensile Stress at Break, ISO 527-1,-2, Injection Molding: 50 to 60 MPa Tensile Modulus, ISO 527-1,-2, Injection Molding: 9.5 to 11.5 GPa Tensile Strain at Break, ISO 527-1,-2, Injection Molding: 0.6 to 0.7% Charpy Notched Impact Strength, ISO 179, Injection Molding: 2.5 to 4 kJ/m² Charpy Unnotched Impact Strength, ISO 179, Injection Molding: 7.5 to 9 kJ/m² Compressive Strength, ISO 604: 220 to 240 MPa Insulation Resistance dry, IEC 167: 1e12 to 1e13 ohm

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