Celanese
The chemistry inside innovation™

VANDAR® 4602Z - PBT

Description

Unreinforced, good chemical resistance
4602Z is an unfilled thermoplastic alloy with good weatherability and chemical resistance.

Physical properties	Value	Unit	Test Standard
Density	**78**	lb/ft³	ISO 1183
Melt volume rate, MVR	**9**	cm³/10min	ISO 1133
MVR temperature	**482**	°F	ISO 1133
MVR load	**11**	lb	ISO 1133
Molding shrinkage, parallel (flow)	**1.7 - 2.2**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**1.7 - 2.2**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**0.45**	%	Sim. to ISO 62
Humidity absorption, 23°C/50%RH	**0.2**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**203053**	psi	ISO 527-1, -2
Tensile stress at yield, 50mm/min	**4500**	psi	ISO 527-1, -2
Tensile strain at yield, 50mm/min	**5.5**	%	ISO 527-1, -2
Tensile nominal strain at break, 50mm/min	**>50**	%	ISO 527-1, -2
Tensile stress at 50% strain, 50mm/min	**3770**	psi	ISO 527-1, -2
Flexural modulus, 23°C	**203000**	psi	ISO 178
Flexural strength, 23°C	**5950**	psi	ISO 178
Charpy impact strength, 23°C	**NB**	ft-lb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**NB**	ft-lb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	**33.3**	ft-lb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	**4.76**	ft-lb/in²	ISO 179/1eA
Izod impact notched, 23°C	**38.1**	ft-lb/in²	ISO 180/1A
Izod impact notched, -30°C	**4.76**	ft-lb/in²	ISO 180/1A
Rockwell hardness (M-Scale)	**101**	M-Scale	ISO 2039-2

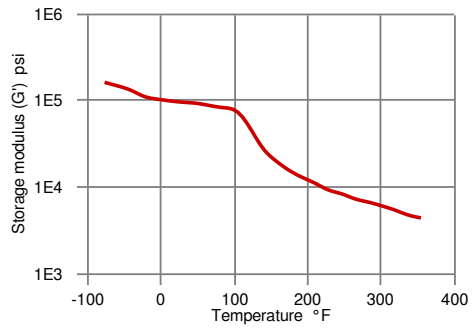
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	**437**	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	**140**	°F	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	**118**	°F	ISO 75-1, -2
DTUL at 0.45 MPa	**230**	°F	ISO 75-1, -2
Vicat softening temperature, 50°C/h 50N	**266**	°F	ISO 306
Coeff. of linear therm expansion, parallel	**0.667**	E-4/°F	ISO 11359-2
Coeff. of linear therm expansion, normal	**0.633**	E-4/°F	ISO 11359-2
Flammability at thickness h	**HB**	class	UL 94
thickness tested (h)	**0.0335**	in	UL 94

Electrical properties	Value	Unit	Test Standard
Dielectric constant (Dk), 100Hz	**4.4**	-	IEC 60250
Dielectric constant (Dk), 1MHz	**3.9**	-	IEC 60250
Dissipation factor, 100Hz	**75**	E-4	IEC 60250
Dissipation factor, 1MHz	**310**	E-4	IEC 60250
Volume resistivity, 23°C	**1E12**	Ohm*m	IEC 62631-3-1
Surface resistivity, 23°C	**1E14**	Ohm	IEC 62631-3-2
Electric strength, 23°C (AC)	**610**	kV/in	IEC 60243-1
Comparative tracking index	**PLC 0**	-	UL 746

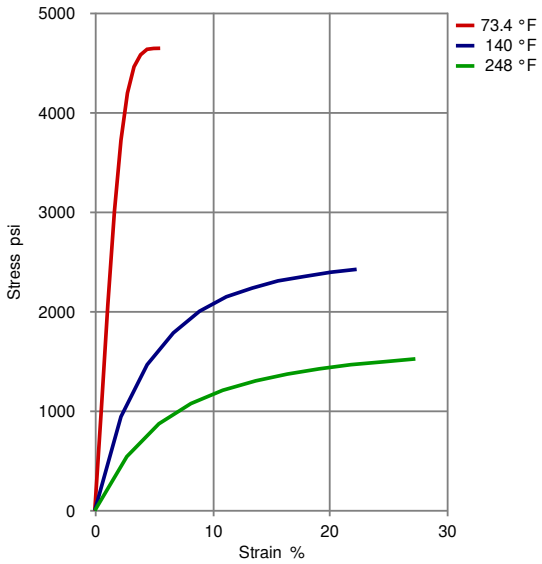
VANDAR® 4602Z - PBT

Diagrams

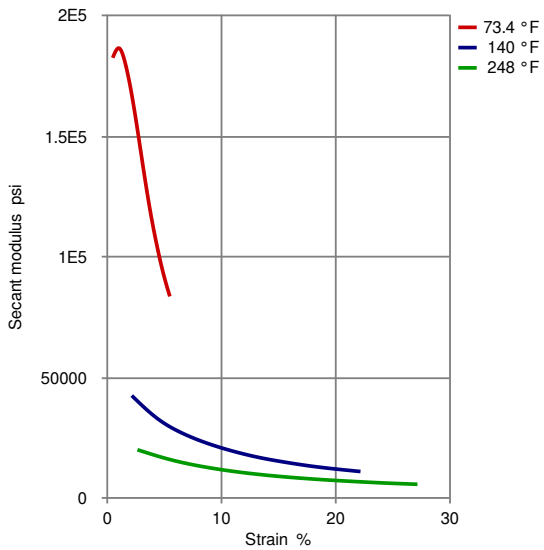
Dynamic Shear modulus-temperature



Stress-strain



Secant modulus-strain



Typical injection moulding processing conditions

Pre Drying	Value	Unit
Necessary low maximum residual moisture content	**0.02**	%
Drying time	**4**	h
Drying temperature	**248 - 266**	°F

VANDAR® 4602Z - PBT

Temperature	Value	Unit
Hopper temperature	**68 - 122**	°F
Feeding zone temperature	**446 - 464**	°F
Zone1 temperature	**446 - 464**	°F
Zone2 temperature	**455 - 482**	°F
Zone3 temperature	**455 - 482**	°F
Zone4 temperature	**464 - 500**	°F
Nozzle temperature	**464 - 500**	°F
Melt temperature	**455 - 500**	°F
Mold temperature	**149 - 205**	°F
Hot runner temperature	**482 - 500**	°F

Speed	Value
Injection speed	**medium-fast**

Other text information

Pre-drying

To avoid hydrolytic degradation during processing, Vandar resins have to be dried to a moisture level equal to or less than 0.02%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-40°F (-40°C) at 250°F (121°C) for 4 hours.

Longer pre-drying times/storage

For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature to 100° C.

Injection molding

Rear Temperature 450-480(230-250) deg F (deg C)
Center Temperature 460-490(235-255) deg F (deg C)
Front Temperature 470-500(240-260) deg F (deg C)
Nozzle Temperature 470-510(240-265) deg F (deg C)
Melt Temperature 470-510(240-265) deg F (deg C)
Mold Temperature 100-200(40-95 deg F (deg C)
Back Pressure 0-50 psi
Screw Speed Moderate
Injection Speed Fast

Injection speed, injection pressure and holding pressure have to be optimized to the individual article geometry. To avoid material degradation during processing low back pressure and minimum screw speed have to be used. Overheating of the material has to be avoided, in particular for flame retardant grades. Up to 25% clean and dry regrind may be used.

Injection Molding Preprocessing

To avoid hydrolytic degradation during processing, Vandar resins have to be dried to a moisture level equal to or less than 0.02%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-30°F (-34°C) at 250°F (121°C) for 4 hours.

Characteristics

Special Characteristics	Auto spec approved, Heat resistant
Product Categories	Impact modified, Unfilled
Processing	Injection molding
Delivery Form	Pellets
Additives	Lubricants

Other Approvals

OEM	Specification	Additional Information
Stellantis - Chrysler	CPN 2638	Natural
Stellantis - Chrysler	CPN 2724	Black