

VECTRA® A950 | LCP | Unfilled

Description

Unreinforced Vectra grade suitable for extrusion.

Chemical abbreviation according to ISO 1043-1 : LCP

Inherently flame retardant

FDA compliant.

UL-Listing V-0 in natural and black at 0.42mm thickness per UL 94 flame testing.

Relative-Temperature-Index (RTI) according to UL 746B: electrical 240°C, mechanical 220°C.

UL = Underwriters Laboratories (USA)

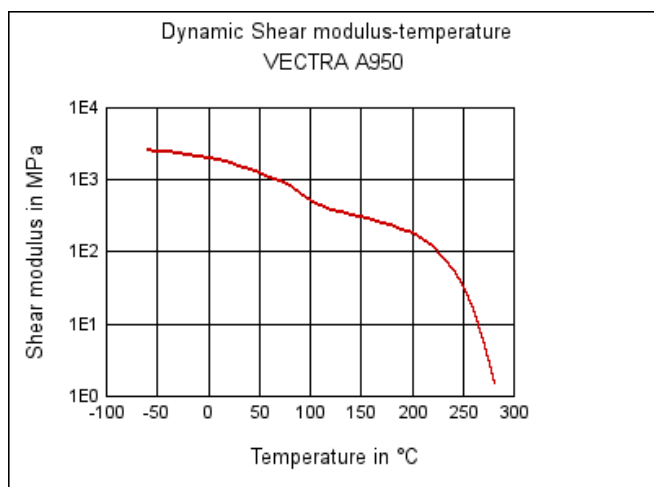
Physical properties	Value	Unit	Test Standard
Density	1400	kg/m ³	ISO 1183
Mold shrinkage - parallel	0.0	%	ISO 294-4
Mold shrinkage - normal	0.7	%	ISO 294-4
Water absorption (23°C-sat)	0.006	%	ISO 62
Humidity absorption (23°C/50%RH)	0.003	%	ISO 62
Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	11700	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	200	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	3.1	%	ISO 527-2/1A
Tensile creep modulus (1h)	9000	MPa	ISO 899-1
Tensile creep modulus (1000h)	6600	MPa	ISO 899-1
Flexural modulus (23°C)	9100	MPa	ISO 178
Flexural strength (23°C)	158	MPa	ISO 178
Charpy impact strength @ 23°C	267	kJ/m ²	ISO 179/1eU
Charpy impact strength @ -30°C	53	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	95	kJ/m ²	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	252	kJ/m ²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	95	kJ/m ²	ISO 180/1A
Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	280	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	193	°C	ISO 75-1/-2
DTUL @ 8.0 MPa	94	°C	ISO 75-1/-2
Vicat softening temperature B50 (50°C/h 50N)	145	°C	ISO 306
Coeff.of linear therm. expansion (parallel)	0.04	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	0.38	E-4/°C	ISO 11359-2
Flammability at thickness h	V-0	class	UL94
Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	3.2	-	IEC 60250
Relative permittivity - 1 MHz	3	-	IEC 60250
Dissipation factor - 100 Hz	159	E-4	IEC 60250
Dissipation factor - 1 MHz	200	E-4	IEC 60250
Volume resistivity	1E13	Ohm*m	IEC 60093
Surface resistivity	1E14	Ohm	IEC 60093
Electric strength	47	kV/mm	IEC 60243-1

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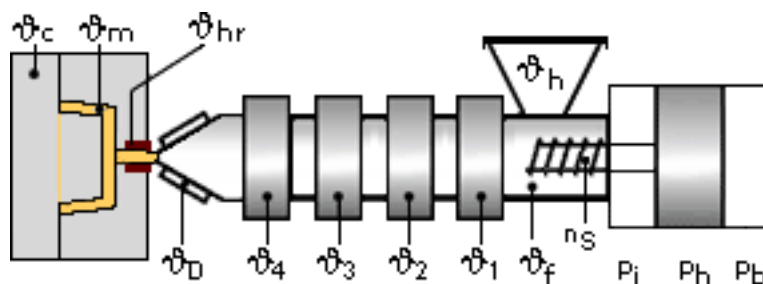
Electrical properties	Value	Unit	Test Standard
Comparative tracking index CTI	150	-	IEC 60112

Test specimen production	Value	Unit	Test Standard
Injection molding melt temperature	293	°C	ISO 294
Injection molding mold temperature	60-120	°C	ISO 294
Injection molding flow front velocity	150	mm/s	ISO 294
Injection molding hold pressure	48	MPa	ISO 294

Dynamic Shear modulus-temperature



Typical injection moulding processing conditions



Pre Drying:

Necessary low maximum residual moisture content: 0.01%

VECTRA should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended. The dew point should be $\leq -40^\circ\text{C}$. The time between drying and processing should be as short as possible.

For subsequent storage of the material in the dryer until processed the temperature does not need to be lowered for grades A, B, C, D and V ($\leq 24\text{ h}$).

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Drying time: 4 - 6 h

Drying temperature: 150 - 150 °C

Temperature:

	° Manifold	° Mold	° Melt	° Nozzle	° Zone4	° Zone3	° Zone2	° Zone1	° Feed	° Hopper
min (°C)	285	80	285	290	285	280	275	270	60	20
max (°C)	295	120	295	300	295	290	285	280	80	30

Pressure:

	Inj press	Hold press	Back pressure
min (bar)	500	500	0
max (bar)	1500	1500	30

Speed:

Injection speed: very fast

Screw speed

Screw diameter (mm)	16	25	40	55	75
Screw speed (RPM)	200	140	80	-	-

Special Info:

When using short metering strokes an accumulator is recommended to get short injection times

Injection Molding

A three-zone screw evenly divided into feed, compression, and metering zones is preferred. A higher percentage of feed flights may be needed for smaller machines: 1/2 feed, 1/4 compression, 1/4 metering.

Vectra LCPs are shear thinning, their melt viscosity decreases quickly as shear rate increases. For parts that are difficult to fill, the molder can increase the injection velocity to improve melt flow.

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