VECTRA® E130i | LCP | Glass Reinforced

Description

High temperature capability, easiest flow. Suitable where very thin walls are required. Used for broad range of SMT applications, with minimal dimensional change. 30% glass filled.

Chemical abbreviation according to ISO 1043-1 : LCP
Inherently flame retardant
FDA compliant
UL-Listing V-0 in natural and black at .2mm thickness per UL 94 flame testing.
Relative-Temperature-Index (RTI) according to UL 746B: electrical 240°C, mechanical 240°C at 0.75mm.

UL = Underwriters Laboratories (USA)

Physical properties	Value	Unit	Test Standard
Density	**1610**	kg/m³	ISO 1183
Mold shrinkage - parallel	**0.1**	%	ISO 294-4
Mold shrinkage - normal	**0.4**	%	ISO 294-4
Humidity absorption (23°C/50%RH)	**0.03**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	**15000**	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	**150**	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	**1.6**	%	ISO 527-2/1A
Flexural modulus (23°C)	**13500**	MPa	ISO 178
Flexural strength (23°C)	**220**	MPa	ISO 178
Flexural strain @ break	**2.2**	%	ISO 178
Compressive stress @ 1% strain	**93**	MPa	ISO 604
Charpy impact strength @ 23°C	**43**	kJ/m²	ISO 179/1eU
Charpy notched impact strength @ 23°C	**22**	kJ/m²	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	**31**	kJ/m²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	**20**	kJ/m²	ISO 180/1A
Compressive modulus	**14000**	MPa	ISO 604
Rockwell hardness	**71**	M-Scale	ISO 2039-2

Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	**335**	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	**276**	°C	ISO 75-1/-2
DTUL @ 8.0 MPa	**216**	°C	ISO 75-1/-2
Vicat softening temperature B50 (50°C/h 50N)	**195**	°C	ISO 306
Coeff.of linear therm. expansion (parallel)	**0.07**	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	**0.2**	E-4/°C	ISO 11359-2
Limiting oxygen index (LOI)	**45**	%	ISO 4589
Flammability at thickness h	**V-0**	class	UL94

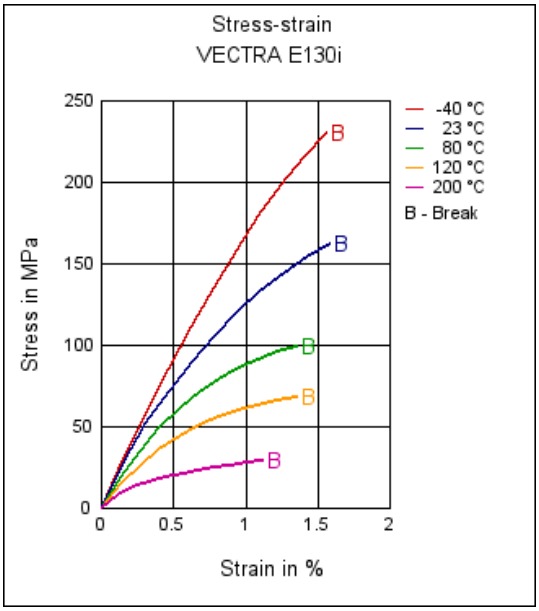
Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	**4**	-	IEC 60250
Relative permittivity - 1 MHz	**3.3**	-	IEC 60250
Relative permittivity at 2.05 GHz	**4.23**	-	IPC TM-650 2.5.5.13
Dissipation factor - 100 Hz	**100**	E-4	IEC 60250
Dissipation factor - 1 MHz	**250**	E-4	IEC 60250

VECTRA® E130i | LCP | Glass Reinforced

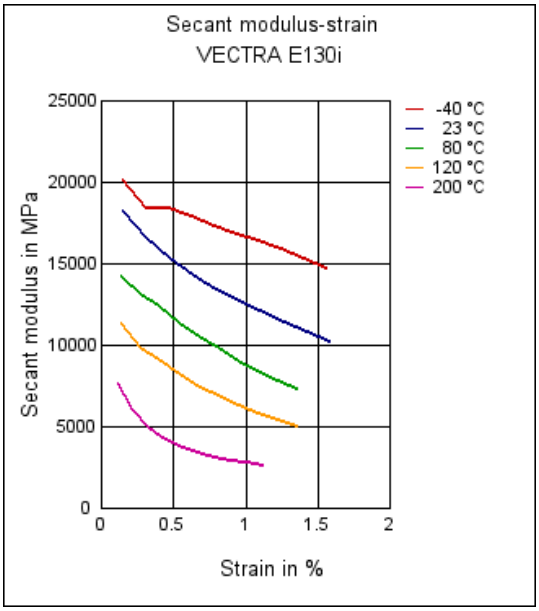
Electrical properties	Value	Unit	Test Standard
Dissipation factor at 2.05 GHz	**60**	E-4	IPC TM-650 2.5.5.13
Volume resistivity	**1E13**	Ohm*m	IEC 60093
Surface resistivity	**1E14**	Ohm	IEC 60093
Electric strength	**32**	kV/mm	IEC 60243-1
Comparative tracking index CTI	**175**	-	IEC 60112
Arc resistance	**140**	s	Internal

Test specimen production	Value	Unit	Test Standard
Injection molding melt temperature	**340**	°C	ISO 294
Injection molding mold temperature	**100**	°C	ISO 294
Injection molding flow front velocity	**150**	mm/s	ISO 294
Injection molding hold pressure	**69**	MPa	ISO 294

Stress-strain

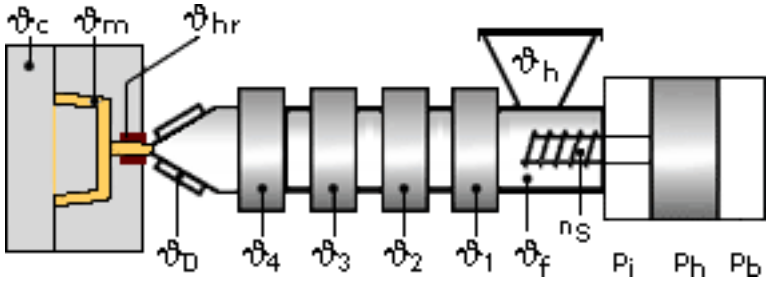


Secant modulus-strain



VECTRA® E130i | LCP | Glass Reinforced

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 =< - 40° 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 (<= 24 h).

Drying time: min. 4 / 6 h

Drying temperature: 150 - 170 °C

Temperature:

	ϑManifold	ϑMold	ϑMelt	ϑNozzle	ϑZone4	ϑZone3	ϑZone2	ϑZone1	ϑFeed	ϑHopper
min (°C)	335	80	335	335	330	325	320	315	60	20
max (°C)	345	120	345	345	340	335	330	325	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® E130i | LCP | Glass Reinforced

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.

Contact Information

Americas
8040 Dixie Highway, Florence, KY 41042 USA
Product Information Service
t: +1-800-833-4882 t: +1-859-372-3244
Customer Service
t: +1-800-526-4960 t: +1-859-372-3214
e: info-engineeredmaterials-am@celanese.com

Asia
4560 Jinke Road, Zhang Jiang Hi Tech Park
Shanghai 201203 PRC
Customer Service
t: +86 21 3861 9266 f: +86 21 3861 9599
e: info-engineeredmaterials-asia@celanese.com

Europa
Am Unisys-Park 1, 65843 Sulzbach, Germany
Product Information Service
t: +(00)-800-86427-531 t: +49-(0)-69-45009-1011
e: info-engineeredmaterials-eu@celanese.co

General Disclaimer