

VECTRA® E540i | LCP | Mineral Reinforced

Description

Mineral filled grade with low warp, easy flow and smooth surface appearance.

Chemical abbreviation according to ISO 1043-1 : LCP

Inherently flame retardant

FDA compliant.

UL-Listing V-0 in natural and black at 1.5mm thickness per UL 94 flame testing.

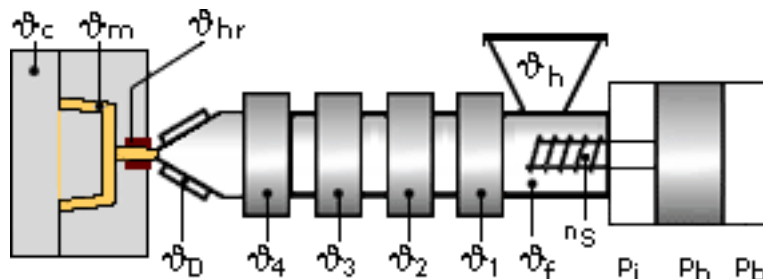
Relative-Temperature-Index (RTI) according to UL 746B: electrical 130°C, mechanical 130°C.

UL = Underwriters Laboratories (USA)

Physical properties	Value	Unit	Test Standard
Density	1740	kg/m ³	ISO 1183
Mold shrinkage - parallel	0.0	%	ISO 294-4
Mold shrinkage - normal	0.5	%	ISO 294-4
Water absorption (23°C-sat)	0.008	%	ISO 62
Humidity absorption (23°C/50%RH)	0.005	%	ISO 62
Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	9800	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	105	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	3.2	%	ISO 527-2/1A
Flexural modulus (23°C)	10000	MPa	ISO 178
Flexural strength (23°C)	125	MPa	ISO 178
Unnotched impact str (Izod) @ 23°C	35	kJ/m ²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	5.2	kJ/m ²	ISO 180/1A
Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	335	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	230	°C	ISO 75-1/-2
Vicat softening temperature B50 (50°C/h 50N)	195	°C	ISO 306
Coeff.of linear therm. expansion (parallel)	0.1	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	0.36	E-4/°C	ISO 11359-2
Flammability at thickness h	V-0	class	UL94
thickness tested (h)	1.5	mm	UL94
Electrical properties	Value	Unit	Test Standard
Relative permittivity - 1 MHz	3.6	-	IEC 60250
Dissipation factor - 1 MHz	310	E-4	IEC 60250
Volume resistivity	1E14	Ohm*m	IEC 60093
Surface resistivity	1E15	Ohm	IEC 60093
Electric strength	46	kV/mm	IEC 60243-1
Comparative tracking index CTI	200	-	IEC 60112

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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 ($\leq 24\text{ h}$).

Drying time: 4 - 6 h

Drying temperature: 170 - 170 °C

Temperature:

	$\vartheta_{\text{Manifold}}$	ϑ_{Mold}	ϑ_{Melt}	$\vartheta_{\text{Nozzle}}$	ϑ_{Zone4}	ϑ_{Zone3}	ϑ_{Zone2}	ϑ_{Zone1}	ϑ_{Feed}	$\vartheta_{\text{Hopper}}$
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.

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Vectra LCPs are shear thinning, their melt viscosity decreases quickly as shear rate increases. For parts that are difficult to fill, the mold 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.com

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