

VECTRA® E820iPd | LCP | Specialty

Description

Catalytically modified E820i

Chemical abbreviation according to ISO 1043-1 : LCP

Inherently flame retardant

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

Relative-Temperature-Index (RTI) according to UL 746B: electrical 130°C, mechanical 130°C at 1.5mm.

UL = Underwriters Laboratories (USA)

Physical properties	Value	Unit	Test Standard
Density	1790	kg/m ³	ISO 1183
Mold shrinkage - parallel	0.4	%	ISO 294-4
Mold shrinkage - normal	1.2	%	ISO 294-4

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	8000	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	89	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	3.6	%	ISO 527-2/1A
Flexural modulus (23°C)	8800	MPa	ISO 178
Flexural strength (23°C)	120	MPa	ISO 178
Flexural strain @ flexural strength	3.2	%	ISO 178
Charpy impact strength @ 23°C	30.0	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	4	kJ/m ²	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	28	kJ/m ²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	4.0	kJ/m ²	ISO 180/1A

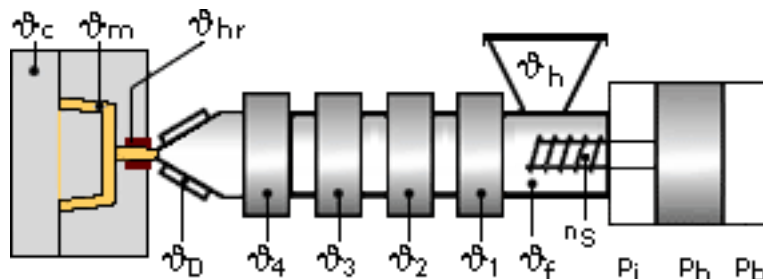
Thermal properties	Value	Unit	Test Standard
DTUL @ 1.8 MPa	215	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	255	°C	ISO 75-1/-2
DTUL @ 8.0 MPa	119	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	0.23	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	0.49	E-4/°C	ISO 11359-2
Flammability at thickness h	V-0	class	UL94

Electrical properties	Value	Unit	Test Standard
Dissipation factor - 1 MHz	163	E-4	IEC 60250
Comparative tracking index CTI	175	-	IEC 60112

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

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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 (≤ 24 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:

For MID applications mold temperature between 120 - 140°C are recommended. For applications with extremely thin wall applications pre-humidity of max. 0,01% is recommended. When using short metering strokes an accumulator is recommended to get short injec

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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 mold can increase the injection velocity to improve melt flow.

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