

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)	90	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	3.6	%	ISO 527-2/1A
Flexural modulus (23°C)	9000	MPa	ISO 178
Flexural strength (23°C)	120	MPa	ISO 178
Flexural strain @ flexural strength	3.2	%	ISO 178
Charpy impact strength @ 23°C	35	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	27	kJ/m ²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	3	kJ/m ²	ISO 180/1A

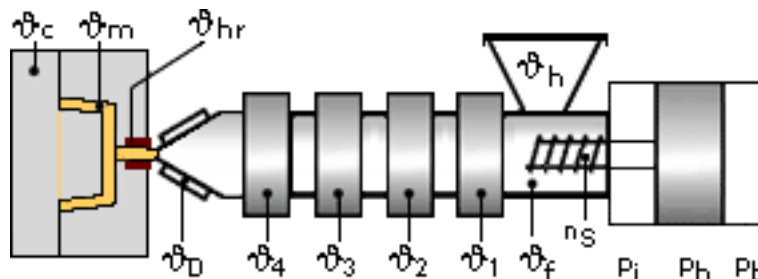
Thermal properties	Value	Unit	Test Standard
DTUL @ 1.8 MPa	220	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	255	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	0.23	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	0.49	E-4/°C	ISO 11359-2
Flammability at thickness h	V-0	class	UL94

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

VECTRA® E820iPd | LCP | Specialty

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:

	\varnothing Manifold	\varnothing Mold	\varnothing Melt	\varnothing Nozzle	\varnothing Zone4	\varnothing Zone3	\varnothing Zone2	\varnothing Zone1	\varnothing Feed	\varnothing 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

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® E820iPd | LCP | Specialty

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

Ticona North American Headquarters
Product Information Service
8040 Dixie Highway
Florence, KY 41042
USA
Tel.: +1-800-833-4882
Tel.: +1-859-372-3244
email: prodinfo@ticona.com
Ticona on the web: www.ticona.com

Customer Service

Tel.: +1-800-526-4960
Tel.: +1-859-372-3214
Fax: +1-859-372-3125

Europe

Ticona GmbH
Information Service
Tel.: +49 (0) 180-5842662 (Germany)
+49 (0) 69-30516299 (Europe)
Fax: +49 (0) 180-2021202 (Germany & Europe)
email: infoservice@ticona.de
Internet: www.ticona.com

General Disclaimer

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colorants or other additives may cause significant variations in data values.

Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use.

To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication.

Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards.

We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed (+49 (0) 69 30516299 for Europe and +1 859-372-3244 for the Americas) for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.

The products mentioned herein are not intended for use in medical or dental implants.

© Copyright 2007, Ticona, all rights reserved. (Pub. 26-September-2013)