

VECTRA® MT1335 | LCP | Medical Technology

Description

Best High Current Arc Ignition (HAI) performance. Glass/PTFE filled.

Chemical abbreviation according to ISO 1043-1 : LCP

Inherently flame retardant

Ticona has established at the FDA a drug master file (DMF no.8468) and a Device Master File (MAF no.315) for Vectra MT1335. These are to assist our customers with their end use FDA petitions. Vectra MT1335 has been tested and complies with USP Class VI.

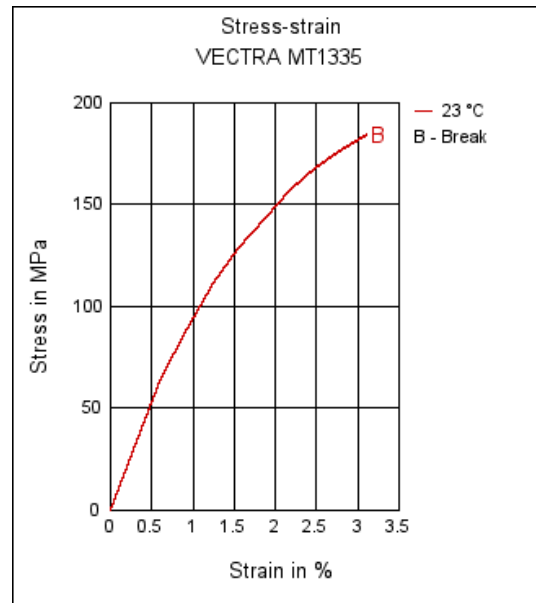
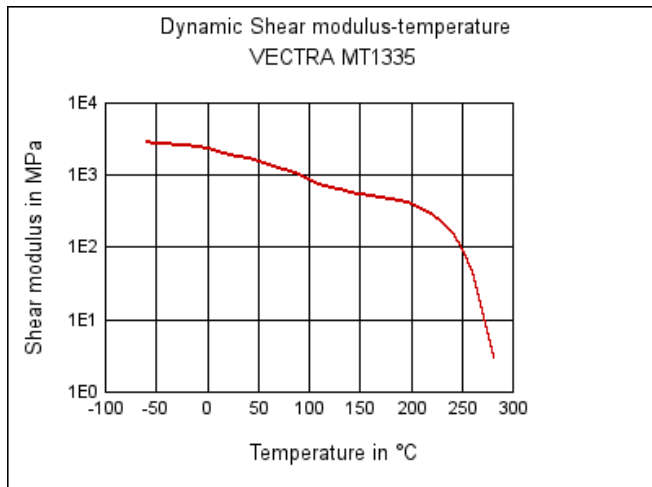
Physical properties	Value	Unit	Test Standard
Density	1620	kg/m ³	ISO 1183
Mold shrinkage - parallel	0.1	%	ISO 294-4
Mold shrinkage - normal	0.4	%	ISO 294-4
Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	11000	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	171	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	3.3	%	ISO 527-2/1A
Flexural modulus (23°C)	10500	MPa	ISO 178
Flexural strength (23°C)	206	MPa	ISO 178
Compressive stress @ 1% strain	77	MPa	ISO 604
Charpy impact strength @ 23°C	38	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	26	kJ/m ²	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	33	kJ/m ²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	17.0	kJ/m ²	ISO 180/1A
Compressive modulus	10500	MPa	ISO 604
Rockwell hardness	55	M-Scale	ISO 2039-2
Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	280	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	230	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	250	°C	ISO 75-1/-2
DTUL @ 8.0 MPa	162	°C	ISO 75-1/-2
Vicat softening temperature B50 (50°C/h 50N)	146	°C	ISO 306
Coeff.of linear therm. expansion (normal)	0.19	E-4/°C	ISO 11359-2
Flammability at thickness h	V-0	class	UL94
Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	3.5	-	IEC 60250
Relative permittivity - 1 MHz	3.1	-	IEC 60250
Dissipation factor - 100 Hz	200	E-4	IEC 60250
Dissipation factor - 1 MHz	160	E-4	IEC 60250
Volume resistivity	1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	32	kV/mm	IEC 60243-1
Comparative tracking index CTI	175	-	IEC 60112
Arc resistance	130	s	Internal

VECTRA® MT1335 | LCP | Medical Technology

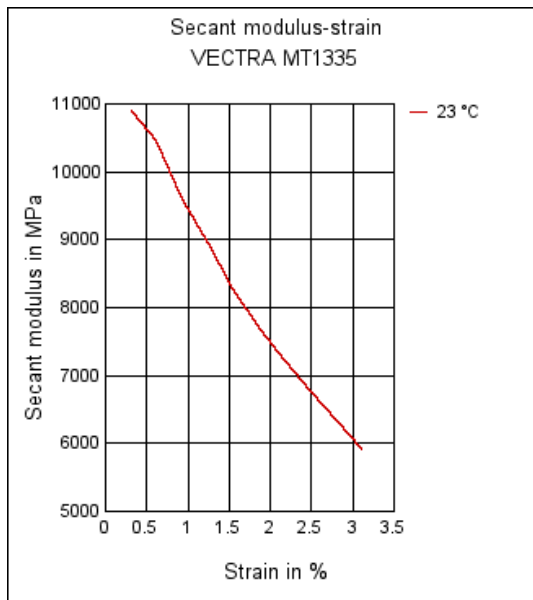
Test specimen production	Value	Unit	Test Standard
Injection molding melt temperature	293	°C	ISO 294
Injection molding mold temperature	60	°C	ISO 294
Injection molding flow front velocity	150	mm/s	ISO 294
Injection molding hold pressure	48	MPa	ISO 294

Dynamic Shear modulus-temperature

Stress-strain

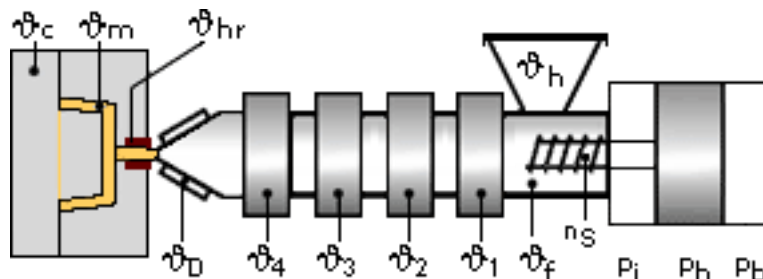


Secant modulus-strain



VECTRA® MT1335 | LCP | Medical Technology

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: 150 - 150 °C

Temperature:

	Θ Manifold	Θ Mold	Θ Melt	Θ Nozzle	Θ Zone4	Θ Zone3	Θ Zone2	Θ Zone1	Θ Feed	Θ 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® MT1335 | LCP | Medical Technology

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.co

General Disclaimer

This publication was printed based on Celanese's present state of knowledge, and Celanese undertakes no obligation to update it. Because conditions of product use are outside Celanese's control, Celanese makes no warranties, express or implied, and assumes no liability in connection with any use of this information. Nothing herein is intended as a license to operate under or a recommendation to infringe any patents.

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, +1 859-372-3244 for the Americas and +86 21 3861 9266 for Asia) for additional technical information. Visit our web site for the appropriate Safety Data Sheets (SDS) before attempting to process our products. Feel free to call Customer Services for additional assistance.

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

© 2014 Celanese or its affiliates. All rights reserved. (Published 21.Dec.2015)

Celanese®, registered C-ball design and all other trademarks identified herein with ®, TM, SM, unless otherwise noted, are trademarks of Celanese or its affiliates. Fortron is a registered trademark of Fortron Industries LLC.