

# VECTRA® MT® 1305

## Liquid Crystal Polymer

Vectra® MT1305 VF3001 (natural) is a 15% glass reinforced, easy flow LCP grade for injection molding.

Vectra® MT1305 VF3001 (natural) is a special grade developed for medical industry applications and complies with:

- Food Contact Substance Notification (FCN) No. 742 of the Food and Drug Administration (FDA) and is listed in the Drug Master File (DMF 8464) and the Device Master File (MAF 315)
- the corresponding EU and national registry regulatory requirements
- biocompatibility in tests corresponding to USP 23 Class VI/ISO 10993
- low residual monomers
- no animal products

Provides easier flow than MT1310 VF3001 (natural)

Slightly tougher, but may warp slightly more than MT1310 in some parts

Chemical abbreviation according to ISO 1043-1 : LCP

Inherently flame retardant

UL-Listing V-0 in natural and black at 0.44mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electricals 240 °C, mechanicals 220 °C at 0.85mm. UL = Underwriters Laboratories (USA)

### Product information

Resin Identification	LCP-GF15	ISO 1043
Part Marking Code	>LCP-GF15<	ISO 11469

### Rheological properties

Moulding shrinkage, parallel	0.1 %	ISO 294-4, 2577
Moulding shrinkage, normal	0.4 %	ISO 294-4, 2577

### Typical mechanical properties

Tensile modulus	12000 MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	190 MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3 %	ISO 527-1/-2
Flexural modulus	12000 MPa	ISO 178
Flexural strength	230 MPa	ISO 178
Compressive modulus	10000 MPa	ISO 604
Compressive stress at 1% strain	40.7 MPa	ISO 604
Charpy notched impact strength, 23 °C	80 kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength, 23 °C	45 kJ/m <sup>2</sup>	ISO 180/1A
Izod impact strength, 23 °C	61 kJ/m <sup>2</sup>	ISO 180/1U
Hardness, Rockwell, M-scale	80	ISO 2039-2
Poisson's ratio	0.33 <sup>[C]</sup>	

[C]: Calculated

### Thermal properties

Melting temperature, 10 °C/min	280 °C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	230 °C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	250 °C	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	157 °C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 50N	162 °C	ISO 306

# VECTRA® MT® 1305

## Liquid Crystal Polymer

Coefficient of linear thermal expansion (CLTE), parallel	10 E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	18 E-6/K	ISO 11359-1/-2

### Flammability

Burning Behav. at thickness h	V-0 class	IEC 60695-11-10
-------------------------------	-----------	-----------------

### Electrical properties

Relative permittivity, 100Hz	3.5	IEC 62631-2-1
Relative permittivity, 1MHz	3	IEC 62631-2-1
Dissipation factor, 100Hz	200 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	180 E-4	IEC 62631-2-1
Volume resistivity	1E13 Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15 Ohm	IEC 62631-3-2
Electric strength	34 kV/mm	IEC 60243-1
Comparative tracking index	200	IEC 60112
Arc Resistance	135 s	UL 746B

### Physical/Other properties

Density	1500 kg/m <sup>3</sup>	ISO 1183
---------	------------------------	----------

### Injection

Drying Recommended	yes
Drying Temperature	150 °C
Drying Time, Dehumidified Dryer	4 - 6 h
Processing Moisture Content	≤0.01 %
Melt Temperature Optimum	290 °C
Min. melt temperature	285 °C
Max. melt temperature	295 °C
Screw tangential speed	0.2 - 0.3 m/s
Mold Temperature Optimum	100 °C
Min. mould temperature	80 °C
Max. mould temperature	120 °C
Back pressure	3 MPa
Ejection temperature	234 °C

### Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Special characteristics	Flame retardant, Light stabilised or stable to light, U.V. stabilised or stable to weather, Heat stabilised or stable to heat

# VECTRA® MT® 1305

## Liquid Crystal Polymer

### Additional information

Injection molding

#### Preprocessing

Vectra resins are well known for their excellent thermal and hydrolytic stability. In order to ensure these properties are optimum, the resin should be dried correctly prior to processing. The Vectra MT-grades MT1300, MT1305, MT1310, MT1335, MT1340 and MT1345 should be dried at 150 °C for a minimum of 4 hours in a desiccant dryer.

#### Processing

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 molder can increase the injection velocity to improve melt flow.

Processing Notes

#### Pre-Drying

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.

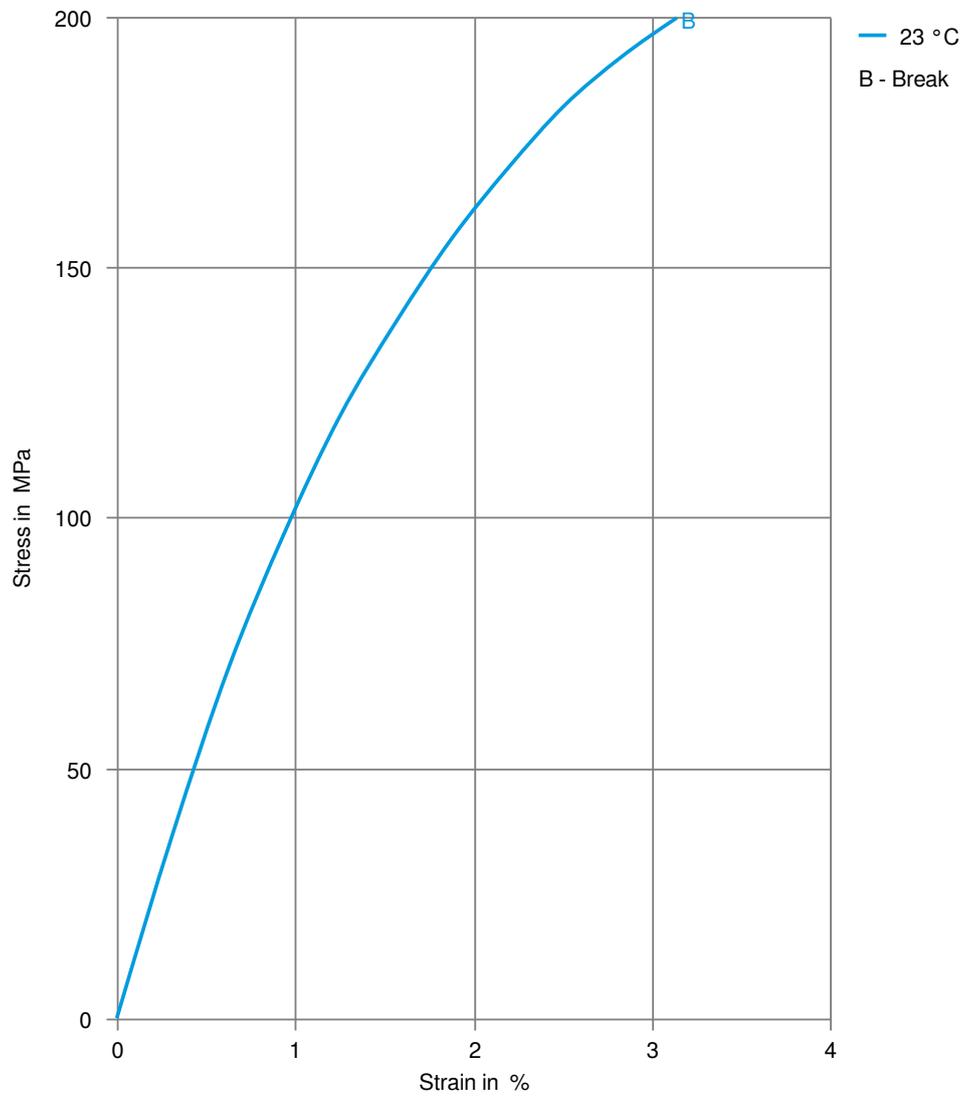
#### Storage

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 ( $\leq 24$  h).

# VECTRA® MT® 1305

Liquid Crystal Polymer

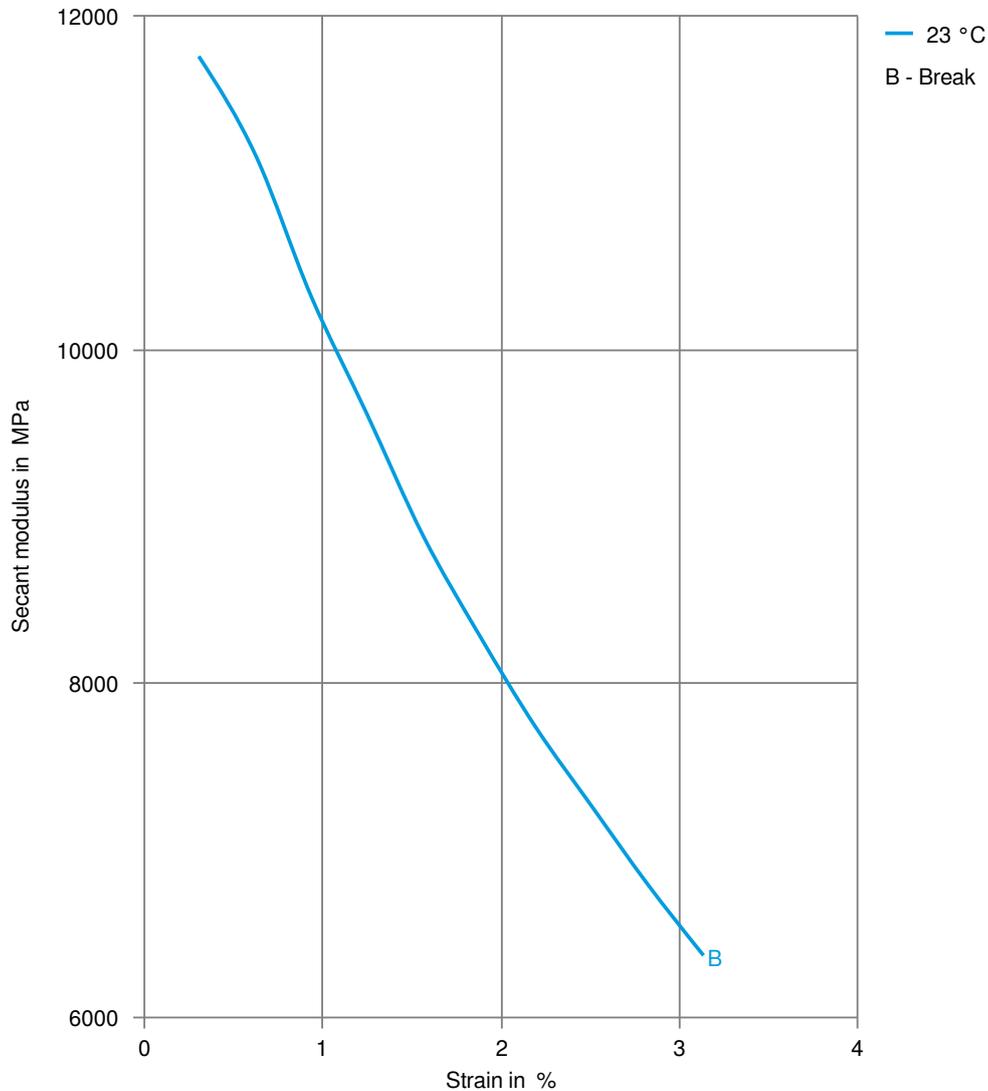
## Stress-strain



# VECTRA® MT® 1305

## Liquid Crystal Polymer

### Secant modulus-strain



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. Colourants or other additives may cause significant variations in data values. Properties of moulded 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. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, 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 for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.

© 2025 Celanese or its affiliates. All rights reserved. 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. KEPITAL is a registered trademark of Korea Engineering Plastics Company, Ltd.