VECTRA® MT®4310

Liquid Crystal Polymer

Vectra® MT4310 VF3001 (natural) is a 30% glass reinforced high flow, LCP grade for injection molding.

Vectra® MT4310 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

Highest temperature capability
Easiest flow
Suitable where very thin walls are required
Used for broad range of SMT applications, with minimal dimensional change
Chemical abbreviation according to ISO 1043-1 : LCP
Inherently flame retardant

Product information

Resin Identification	LCP-GF30	ISO 1043
Part Marking Code	>LCP-GF30<	ISO 11469

Rheological properties

Molding shrinkage, parallel	0.1	%	ISO 294-4, 2577
Molding shrinkage, normal	0.5	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	2.32E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	23200	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.6	%	ISO 527-1/-2
Flexural modulus	2.32E6	psi	ISO 178
Flexural strength	32600	psi	ISO 178
Compressive modulus	2.03E6	psi	ISO 604
Compressive stress at 1% strain	13500	psi	ISO 604
Charpy notched impact strength, 23°C	19	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23°C	14.3	ftlb/in²	ISO 180/1A
Hardness, Rockwell, M-scale	71		ISO 2039-2

Thermal properties

Melting temperature, 10°C/min	635	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	529	°F	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	421	°F	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	383	°F	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	0.04	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.111	E-4/°F	ISO 11359-1/-2

Revised: 2025-03-20 Source: Celanese Materials Database

VECTRA® MT®4310

Liquid Crystal Polymer

Flammability

Burning Behav. at thickness h	V-0	class	IEC 60695-11-10
Oxygen index	45	%	ISO 4589-1/-2

Electrical properties

Relative permittivity, 100Hz	4		IEC 62631-2-1
Relative permittivity, 1MHz	3.3		IEC 62631-2-1
Dissipation factor, 100Hz	100	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	250	E-4	IEC 62631-2-1
Volume resistivity	1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	1E14	Ohm	IEC 62631-3-2
Electric strength	813	kV/in	IEC 60243-1
Comparative tracking index	200		IEC 60112
Arc Resistance	140	s	UL 746B

Physical/Other properties

Density	0.0581	lb/in^3	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	302	°F
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.01	%
Melt Temperature Optimum	644	°F
Min. melt temperature	635	°F
Max. melt temperature	653	°F
Max. screw tangential speed	0.2 - 0.3	m/s
Mold Temperature Optimum	212	°F
Min. mold temperature	176	°F
Max. mold temperature	248	°F
Back pressure	435	psi
Ejection temperature	464	°F

Characteristics

Processing	Injection Molding
Special characteristics	Flame retardant, Light stabilized or stable to light

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. Vectra LCP MT4310 and MT4350 should be dried at 150°C for a minimum of 6 hours or at 170°C for a minimum of 4 hours in a desiccant dryer.

VECTRA® MT®4310

Liquid Crystal Polymer

Processing Notes

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.

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 =< - 40° C. The time between drying and processing should be as short as possible.

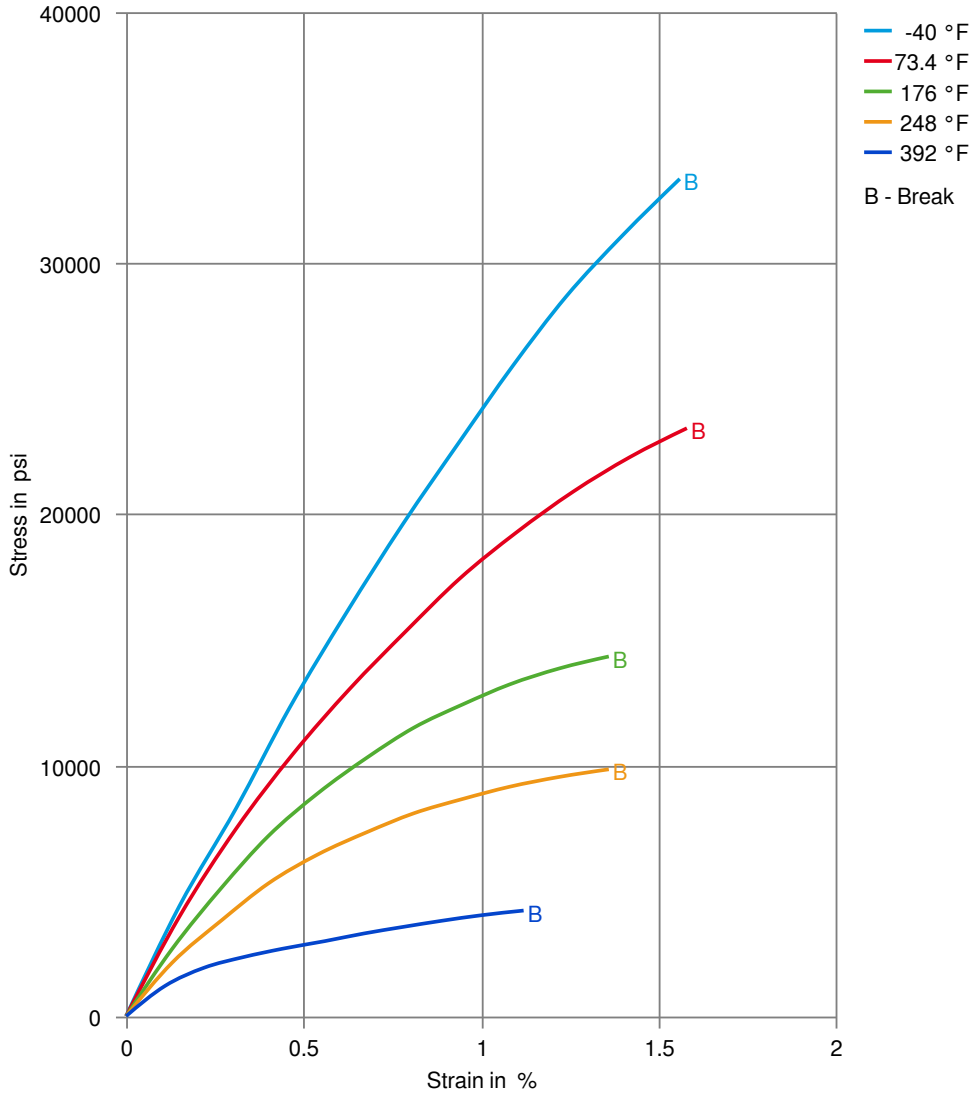
Storage

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 (<= 24 h).

VECTRA® MT®4310

Liquid Crystal Polymer

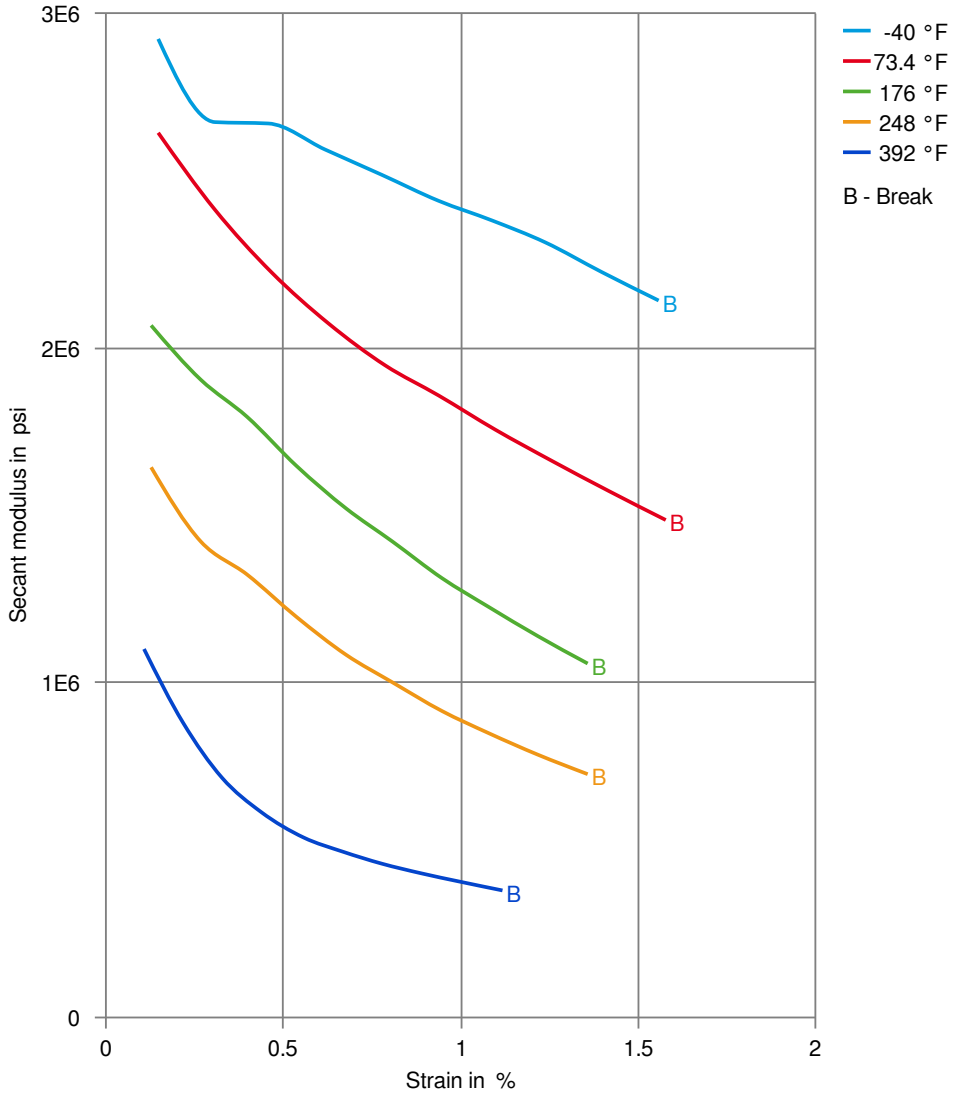
Stress-strain



VECTRA® MT®4310

Liquid Crystal Polymer

Secant modulus-strain



Revised: 2025-03-20 Source: Celanese Materials Database

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. 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.
Copyright © 2026 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.