VECTRA® A725

Liquid Crystal Polymer

Conductive Vectra grade, smooth surface compared to A700. 25% filled grade.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant UL-Listing V-0 at 0.83mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electrical 130°C, mechanical 130°C. UL = Underwriters Laboratories (USA)

Product information

Resin Identification	LCP-CD25		ISO 1043
Part Marking Code	>LCP-CD25<		ISO 11469

Rheological properties

Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	1.17E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	13300	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	4.2	%	ISO 527-1/-2
Flexural modulus	1.13E6	psi	ISO 178
Flexural strength	18000	psi	ISO 178
Charpy impact strength, 23°C	14.7	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	8.09	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23°C	8.09	ftlb/in²	ISO 180/1A
Izod impact strength, 23°C	10.5	ftlb/in²	ISO 180/1U
Hardness, Rockwell, M-scale	44		ISO 2039-2

Thermal properties

Melting temperature, 10°C/min	536	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	320	°F	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	199	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.06	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.172	E-4/°F	ISO 11359-1/-2

Flammability

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

Electrical properties

Volume resistivity	1000	Ohm.m	IEC 62631-3-1
Surface resistivity	1000000	Ohm	IEC 62631-3-2

Physical/Other properties

Density	0.0563	lb/in³	ISO 1183

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Injection

Drying Recommended	yes	
Drying Temperature	302	°F
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.01	%
Melt Temperature Optimum	554	°F
Min. melt temperature	545	°F
Max. melt temperature	563	°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

Characteristics

Processing	Injection Molding
Special characteristics	Increased electrical conductivity, Static dissipative, Flame retardant, Specialty appearance, Low wear / Low friction, High Flow

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 A-grades 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 =< - 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).

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.
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