# VECTRA® E135I

## Liquid Crystal Polymer

35% glass fiber filled /Higher weldline strength. Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant. UL-Listing V-0 in all colors at .15mm thickness per UL 94 flame testing. UL = Underwriters Laboratories (USA)

## Product information

| | | |
|---|---|---|
| Resin Identification | LCP-GF35 | ISO 1043 |
| Part Marking Code | >LCP-GF35< | ISO 11469 |

## Rheological properties

| | | | |
|---|---|---|---|
| Molding shrinkage range, parallel | 0 | % | ISO 294-4, 2577 |
| Molding shrinkage range, normal | 0.3 | % | ISO 294-4, 2577 |

## Typical mechanical properties

| | | | |
|---|---|---|---|
| Tensile modulus | 2.47E6 | psi | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min | 20300 | psi | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 1.5 | % | ISO 527-1/-2 |
| Flexural modulus | 2.32E6 | psi | ISO 178 |
| Flexural strength | 31200 | psi | ISO 178 |
| Flexural strain at failure | 2.1 | % | ISO 178 |
| Compressive modulus | 1.96E6 | psi | ISO 604 |
| Compressive strength | 19600 | psi | ISO 604 |
| Compressive stress at 1% strain | 14500 | psi | ISO 604 |
| Charpy impact strength, 23°C | 19 | ftlb/in² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 12.8 | ftlb/in² | ISO 179/1eA |
| Izod notched impact strength, 23°C | 9.51 | ftlb/in² | ISO 180/1A |
| Izod impact strength, 23°C | 19 | ftlb/in² | ISO 180/1U |
| Hardness, Rockwell, M-scale | 62 | | ISO 2039-2 |

## Thermal properties

| | | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 628 | °F | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa | 527 | °F | ISO 75-1/-2 |
| Vicat softening temperature, 50°C/h 50N | 392 | °F | ISO 306 |
| Coefficient of linear thermal expansion (CLTE), parallel | 0.03 | E-4/°F | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal | 0.328 | E-4/°F | ISO 11359-1/-2 |

## Electrical properties

| | | | |
|---|---|---|---|
| Relative permittivity, 1MHz | 4.1 | | IEC 62631-2-1 |
| Dissipation factor, 1MHz | 320 | E-4 | IEC 62631-2-1 |
| Volume resistivity | 1E14 | Ohm.m | IEC 62631-3-1 |
| Surface resistivity | 1E15 | Ohm | IEC 62631-3-2 |
| Electric strength | 711 | kV/in | IEC 60243-1 |
| Comparative tracking index | 175 | | IEC 60112 |



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## Physical/Other properties

| | | | |
|---|---|---|---|
| Water absorption, 2mm | 0.07 | % | Sim. to ISO 62 |
| Density | 0.0603 | lb/in³ | 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 | 653 | °F |
| Min. melt temperature | 635 | °F |
| Max. melt temperature | 671 | °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 |

## Characteristics

| | |
|---|---|
| Processing | Injection Molding |
| Special characteristics | Flame retardant, Heat stabilized or stable to heat, High Flow, Improved weld line, Lead-free soldering resistant |

## Additional information

Processing Notes

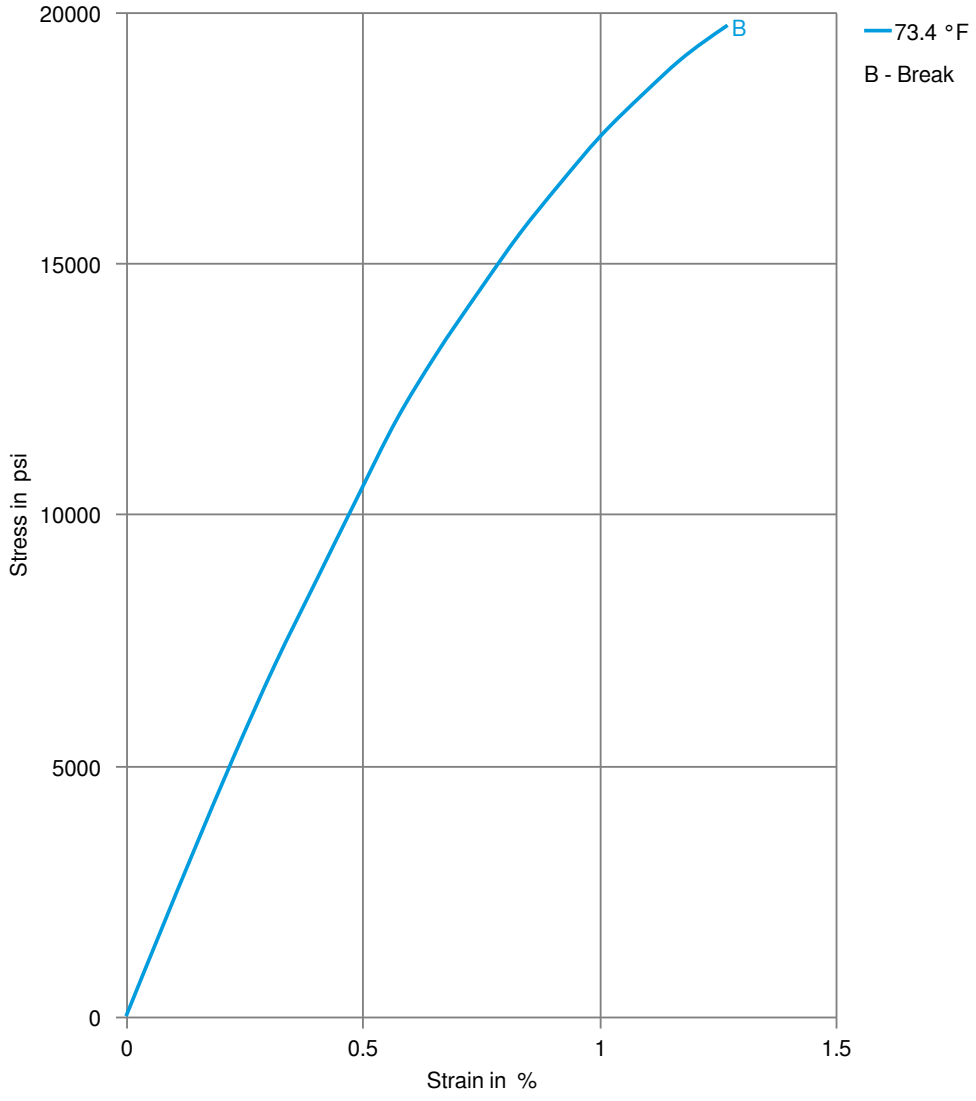
### Pre-Drying

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.

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## Stress-strain



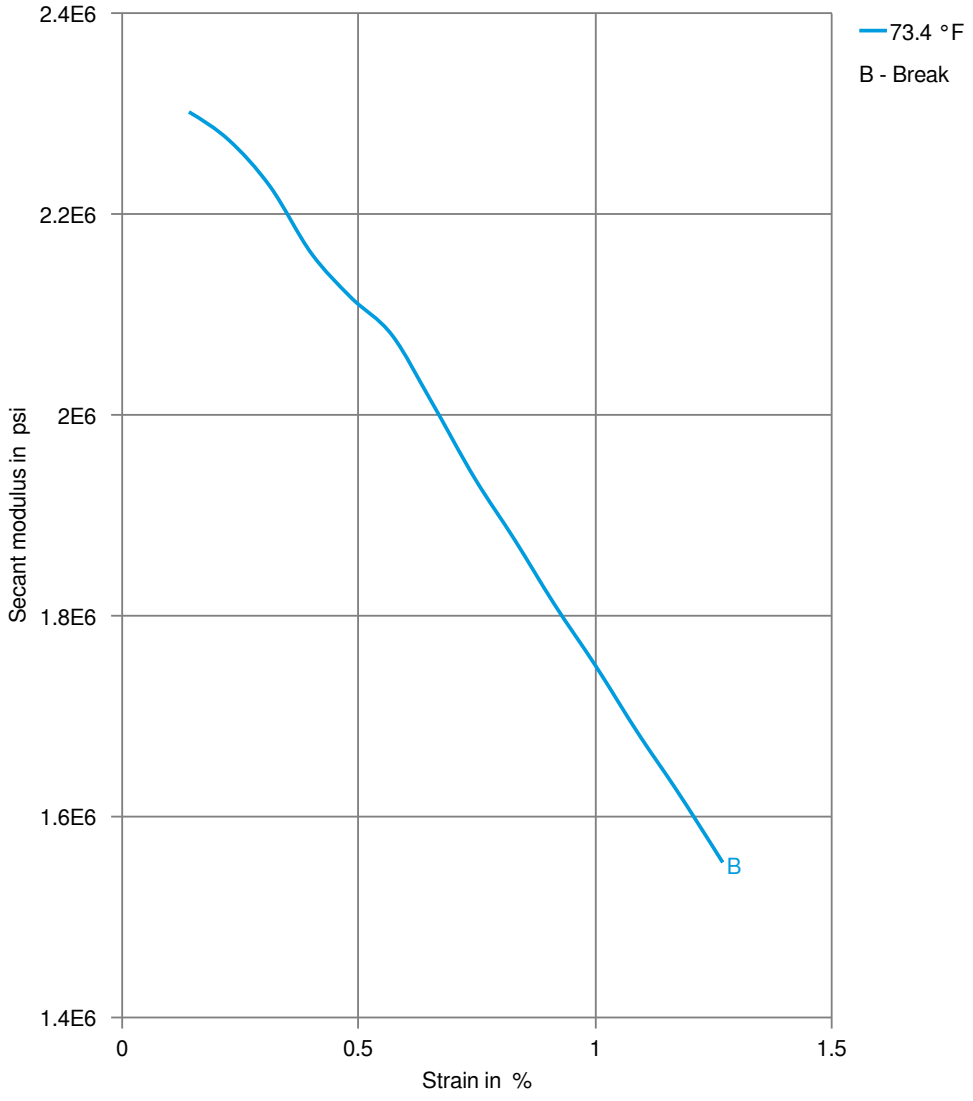



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## Secant modulus-strain






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