

# VECTRA® S475

## Liquid Crystal Polymer

Super High Flow, High heat Resistance and Low Warp for Thin Parts.

Vectra S475 is a 32% glass fiber and mineral reinforced grade.

Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant UL-Listing V-0 in natural and black at 0.1mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electricals 130°C, mechanicals 130°C. UL = Underwriters Laboratories (USA)

### Product information

|                      |                   |           |
|----------------------|-------------------|-----------|
| Resin Identification | LCP-(GF+MD)3<br>2 | ISO 1043  |
| Part Marking Code    | >LCP-(GF+MD)32<   | ISO 11469 |

### Rheological properties

|                              |       |                 |
|------------------------------|-------|-----------------|
| Moulding shrinkage, parallel | 0 %   | ISO 294-4, 2577 |
| Moulding shrinkage, normal   | 0.4 % | ISO 294-4, 2577 |

### Typical mechanical properties

|                                      |                        |              |
|--------------------------------------|------------------------|--------------|
| Tensile modulus                      | 13000 MPa              | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min     | 140 MPa                | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min     | 1.9 %                  | ISO 527-1/-2 |
| Flexural modulus                     | 13000 MPa              | ISO 178      |
| Flexural strength                    | 190 MPa                | ISO 178      |
| Flexural strain at failure           | 2.4 %                  | ISO 178      |
| Charpy impact strength, 23°C         | 14.5 kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy notched impact strength, 23°C | 4 kJ/m <sup>2</sup>    | ISO 179/1eA  |
| Izod notched impact strength, 23°C   | 6 kJ/m <sup>2</sup>    | ISO 180/1A   |
| Poisson's ratio                      | 0.33 <sup>[C]</sup>    |              |

[C]: Calculated

### Thermal properties

|                                                          |          |                |
|----------------------------------------------------------|----------|----------------|
| Melting temperature, 10°C/min                            | 350 °C   | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa            | 305 °C   | ISO 75-1/-2    |
| Temperature of deflection under load, 8 MPa              | 213 °C   | ISO 75-1/-2    |
| Coefficient of linear thermal expansion (CLTE), parallel | 10 E-6/K | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal   | 25 E-6/K | ISO 11359-1/-2 |

### Flammability

|                               |           |                 |
|-------------------------------|-----------|-----------------|
| Burning Behav. at thickness h | V-0 class | IEC 60695-11-10 |
| Thickness tested              | 0.1 mm    | IEC 60695-11-10 |

### Electrical properties

|                                                             |        |                 |
|-------------------------------------------------------------|--------|-----------------|
| Relative permittivity, 1MHz                                 | 3.7    | IEC 62631-2-1   |
| Dissipation factor, 1MHz                                    | 80 E-4 | IEC 62631-2-1   |
| Relative permittivity, printed circuits and boards, 2.5 GHz | 4      | IEC 61189-2-721 |
| Dissipation factor, printed circuits and boards, 2.5 GHz    | 15 E-4 | IEC 61189-2-721 |

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Liquid Crystal Polymer

## Physical/Other properties

|         |                        |          |
|---------|------------------------|----------|
| Density | 1650 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        | 365 °C        |
| Min. melt temperature           | 360 °C        |
| Max. melt temperature           | 370 °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            | 265 °C        |

## Characteristics

|                         |                                                                                                                         |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Processing              | Injection Moulding                                                                                                      |
| Special characteristics | Flame retardant, Heat stabilised or stable to heat, High Flow, Low Warpage, Lead-free soldering resistant, Light weight |

## 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.

### Storage

For subsequent storage of the material in the dryer until processed the temperature does