Celanese
The chemistry inside innovation™

# VECTRA® A515

15% mineral filled
Easier flow and slightly improved toughness over A530. Outstanding hydrolytic stability. 15% mineral filled.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant FDA compliant UL-Listing V-0 in natural at 0.38mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electrical 130°C, mechanical 130°C. UL = Underwriters Laboratories (USA)

## Rheological properties

| | | | |
|---|---|---|---|
| Moulding shrinkage range, parallel | | % | ISO 294-4, 2577 |
| Moulding shrinkage range, normal | 0.6 | % | ISO 294-4, 2577 |

## Typical mechanical properties

| | | | |
|---|---|---|---|
| Tensile Modulus | 12000 | MPa | ISO 527-1/-2 |
| Stress at break, 5mm/min | 190 | MPa | ISO 527-1/-2 |
| Strain at break, 5mm/min | 4.8 | % | ISO 527-1/-2 |
| Flexural Modulus | 12000 | MPa | ISO 178 |
| Flexural Strength | 180 | MPa | ISO 178 |
| Compressive modulus | 9500 | MPa | ISO 604 |
| Compressive stress at 1% strain | 61 | MPa | ISO 604 |
| Charpy notched impact strength, 23°C | 90 | kJ/m² | ISO 179/1eA |
| Izod notched impact strength, 23°C | 60 | kJ/m² | ISO 180/1A |
| Izod impact strength, 23°C | 126 | kJ/m² | ISO 180/1U |
| Hardness, Rockwell, M-scale | 63 | | ISO 2039-2 |

## Thermal properties

| | | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 280 | °C | ISO 11357-1/-3 |
| Temp. of deflection under load, 1.8 MPa | 185 | °C | ISO 75-1/-2 |
| Temp. of deflection under load, 0.45 MPa | 232 | °C | ISO 75-1/-2 |
| Temp. of deflection under load, 8 MPa | 103 | °C | ISO 75-1/-2 |
| Coeff. of linear therm. expansion, parallel | | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal | 30 | E-6/K | ISO 11359-1/-2 |

## Flammability

| | | | |
|---|---|---|---|
| Burning Behav. at thickness h | V-0 | class | UL 94 |

## Electrical properties

| | | | |
|---|---|---|---|
| Relative permittivity, 100Hz | 3.8 | | IEC 62631-2-1 |
| Relative permittivity, 1MHz | 3.2 | | IEC 62631-2-1 |
| Dissipation factor, 100Hz | 100 | E-4 | IEC 62631-2-1 |
| Dissipation factor, 1MHz | 200 | 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 | 40 | kV/mm | IEC 60243-1 |
| Comparative tracking index | PLC 3 | PLC | UL 746A |

# VECTRA® A515

| | | | |
|---|---|---|---|
| Arc Resistance | 145 | s | Internal |

## Other properties

| | | | |
|---|---|---|---|
| Density | 1520 | kg/m³ | ISO 1183 |

## Injection

| | | |
|---|---|---|
| Drying Temperature | 150 | °C |
| Drying Time, Dehumidified Dryer | 4 - 6 | h |
| Processing Moisture Content | 0.01 | % |
| Screw tangential speed | 0.17 - 0.18 | m/s |
| Max. mould temperature | 80 - 120 | °C |
| Back pressure | 3 | MPa |
| Injection speed | very fast | |

## Characteristics

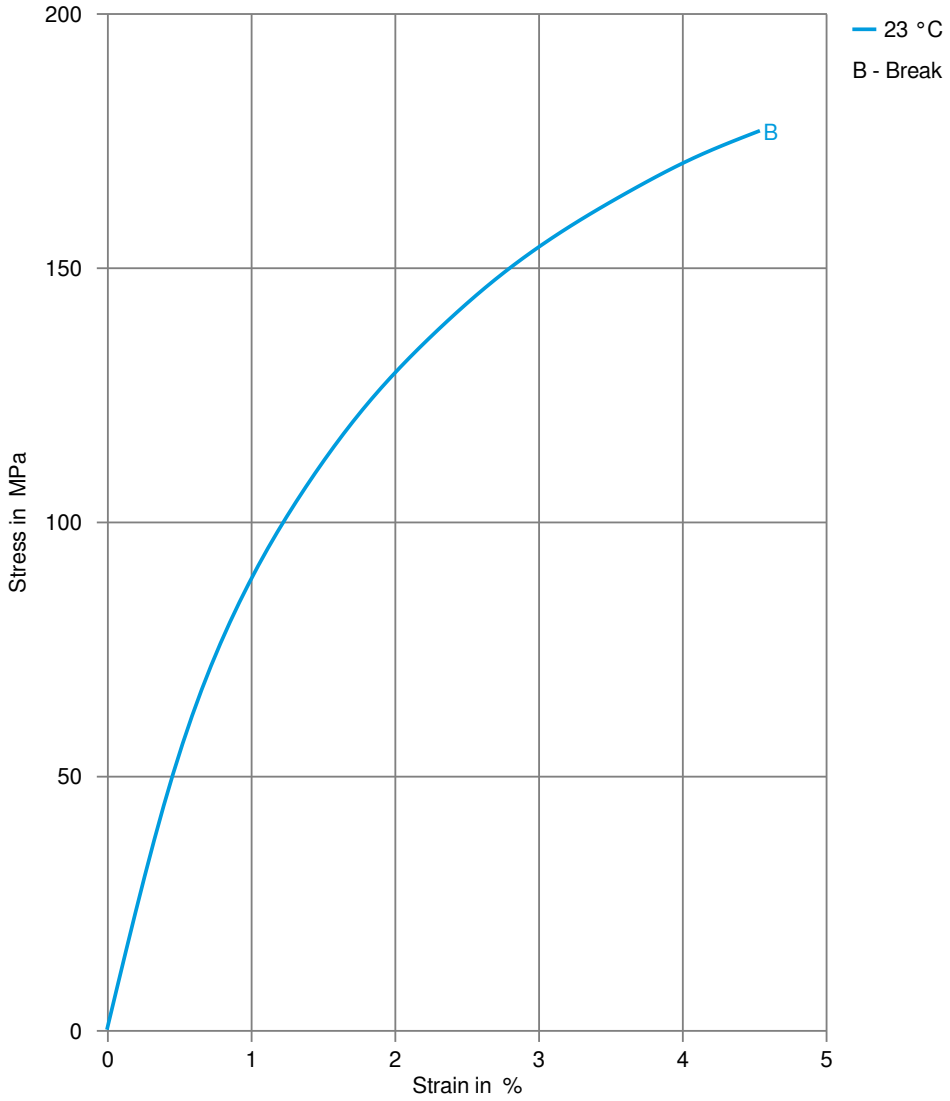
| | |
|---|---|
| Additives | Mineral Filler |

## Additional information

| | |
|---|---|
| Injection molding | 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.<br><br>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. |

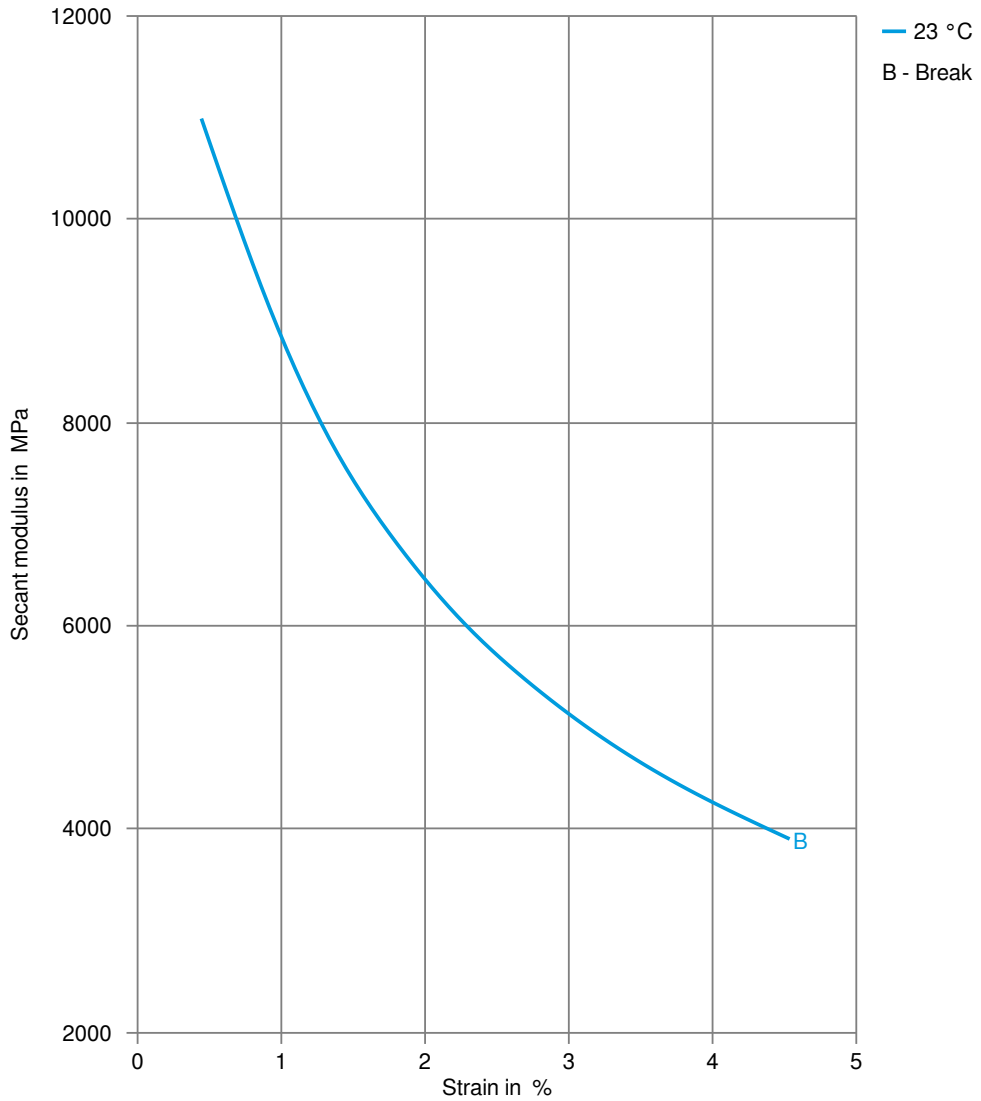
# VECTRA® A515

## Stress-strain



# VECTRA® A515

## Secant modulus-strain



# VECTRA® A515

## Processing Texts

| | |
|---|---|
| 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. |
| Longer pre-drying times/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). |
| Injection molding | 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.<br><br>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. |
| 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. |