# VECTRA® MT1310

## Celanese Corporation - Liquid Crystal Polymer

Friday, April 25, 2014

## General Information

### Product Description

The Standard for the Industry. Excellent balance of properties, including easy flow, easy processing, thermal stability, chemical resistance, mechanical and electrical properties. Suitable for vapor phase surface mount electrical and electronic devices. 30% glass reinforced

Chemical abbreviation according to ISO 1043-1 : LCP
Inherently flame retardant
Celanese has established at the FDA a drug master file (DMF no.8468) and a Device Master File (MAF no.315) for Vectra MT1310. These are to assist our customers with their end use FDA petitions. Vectra MT1310 has been tested and complies with USP Class VI.

### General

| | | | |
|---|---|---|---|
| Material Status | • Commercial: Active | | |
| Availability | • Europe | • North America | |
| Filler / Reinforcement | • Glass Fiber, 30% Filler by Weight | | |
| Features | • Flame Retardant<br>• Good Chemical Resistance | • Good Flow<br>• Good Processability | • Good Thermal Stability |
| Uses | • Electrical/Electronic Applications | | |
| Agency Ratings | • DMF 8468 | • MAF 315 | • USP Class VI |
| RoHS Compliance | • Contact Manufacturer | | |
| Resin ID (ISO 1043) | • LCP | | |

## ASTM & ISO Properties [1]

| Physical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Density | 1.62 | g/cm³ | ISO 1183 |
| Molding Shrinkage | | | ISO 294-4 |
| Across Flow | 0.40 | % | |
| Flow | 0.20 | % | |
| Water Absorption (Equilibrium, 73°F, 50% RH) | 0.040 | % | ISO 62 |
| **Mechanical** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Modulus | 2.18E+6 | psi | ISO 527-2/1A/1 |
| Tensile Stress (Break) | 27600 | psi | ISO 527-2/1A/5 |
| Tensile Strain (Break) | 2.1 | % | ISO 527-2/1A/5 |
| Tensile Creep Modulus (1 hr) | 1.83E+6 | psi | ISO 899-1 |
| Tensile Creep Modulus (1000 hr) | 1.58E+6 | psi | ISO 899-1 |
| Flexural Modulus (73°F) | 2.10E+6 | psi | ISO 178 |
| Flexural Strength (73°F) | 40600 | psi | ISO 178 |
| Compressive Modulus | 2.10E+6 | psi | ISO 604 |
| Compressive Stress (1% Strain) | 14500 | psi | ISO 604 |
| **Impact** | **Nominal Value** | **Unit** | **Test Method** |
| Charpy Notched Impact Strength (73°F) | 12 | ft·lb/in² | ISO 179/1eA |
| Charpy Unnotched Impact Strength (73°F) | 16 | ft·lb/in² | ISO 179/1eU |
| Notched Izod Impact Strength (73°F) | 11 | ft·lb/in² | ISO 180/1A |
| Unnotched Izod Impact Strength (73°F) | 14 | ft·lb/in² | ISO 180/1U |
| **Hardness** | **Nominal Value** | **Unit** | **Test Method** |
| Rockwell Hardness (M-Scale) | 85 | | ISO 2039-2 |

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| Thermal | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Heat Deflection Temperature (66 psi, Unannealed) | 482 | °F | ISO 75-2/B |
| Heat Deflection Temperature (264 psi, Unannealed) | 455 | °F | ISO 75-2/A |
| Heat Deflection Temperature (1160 psi, Unannealed) | 374 | °F | ISO 75-2/C |
| Vicat Softening Temperature | 320 | °F | ISO 306/B50 |
| Melting Temperature [2] | 536 | °F | ISO 11357-3 |
| CLTE - Flow | 3.3E-6 | in/in/°F | ISO 11359-2 |
| CLTE - Transverse | 0.000013 | in/in/°F | ISO 11359-2 |
| **Electrical** | **Nominal Value** | **Unit** | **Test Method** |
| Surface Resistivity | > 1.0E+15 | ohm | IEC 60093 |
| Volume Resistivity | 1.0E+15 | ohm·cm | IEC 60093 |
| Electric Strength | 790 | V/mil | IEC 60243-1 |
| Relative Permittivity | | | IEC 60250 |
| 100 Hz | 4.20 | | |
| 1 MHz | 3.70 | | |
| Dissipation Factor | | | IEC 60250 |
| 100 Hz | 0.016 | | |
| 1 MHz | 0.018 | | |
| Arc Resistance | 140 | sec | Internal Method |
| Comparative Tracking Index | 175 | V | IEC 60112 |
| **Flammability** | **Nominal Value** | **Unit** | **Test Method** |
| Flame Rating | V-0 | | UL 94 |
| Oxygen Index | 45 | % | ISO 4589-2 |

## Processing Information

| Injection | Nominal Value | Unit |
|---|---|---|
| Drying Temperature | 302 | °F |
| Drying Time | 4.0 to 6.0 | hr |
| Suggested Max Moisture | 0.010 | % |
| Hopper Temperature | 68.0 to 86.0 | °F |
| Rear Temperature | 518 to 536 | °F |
| Middle Temperature | 527 to 545 | °F |
| Front Temperature | 536 to 554 | °F |
| Nozzle Temperature | 554 to 572 | °F |
| Processing (Melt) Temp | 545 to 563 | °F |
| Mold Temperature | 176 to 248 | °F |
| Injection Pressure | 7250 to 21800 | psi |
| Injection Rate | Fast | |
| Holding Pressure | 7250 to 21800 | psi |
| Back Pressure | 0.00 to 435 | psi |

**Injection Notes**

Manifold Temperature: 285 to 295°C
Zone 4 Temperature: 285 to 295°C
Feed Temperature: 60 to 80°C

### Notes

[1] Typical properties: these are not to be construed as specifications.

[2] 10°C/min

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