



# CALIBRE™ 200-3

## Trinseo - Polycarbonate Resin

Tuesday, November 5, 2019

### General Information

#### Product Description

CALIBRE™ 200-3 polycarbonate resin is produced in compliance with the US Food and Drug Administration (FDA) and EU food contact regulations. This resin provides excellent impact resistance, heat distortion resistance and optical clarity as well as high melt strength for sheet extrusion applications. Available in natural color only.

#### Main Characteristics:

- U.S. FDA 21 CFR 177.1580
- CSA
- NSF
- Underwriters Laboratory (UL)
- EU food contact 2011/10/EC

#### Applications:

- Small appliances
- Sheet and profile extrusion
- Housewares

#### General

|                 |                                                                                            |
|-----------------|--------------------------------------------------------------------------------------------|
| Material Status | • Commercial: Active                                                                       |
| Availability    | • Europe • Latin America • North America                                                   |
| Features        | • Food Contact Acceptable • High Clarity<br>• Good Melt Strength • High Impact Resistance  |
| Uses            | • Appliances • Household Goods • Sheet                                                     |
| Agency Ratings  | • CSA Unspecified Rating • FDA 21 CFR 177.1580<br>• EU 2011/10/EC • NSF Unspecified Rating |
| Appearance      | • Natural Color                                                                            |
| Forms           | • Pellets                                                                                  |

### ASTM & ISO Properties <sup>1</sup>

| Physical                                     | Nominal Value    | Unit              | Test Method  |
|----------------------------------------------|------------------|-------------------|--------------|
| Density / Specific Gravity                   | 1.20             |                   | ASTM D792    |
| Density                                      | 1.20             | g/cm <sup>3</sup> | ISO 1183/B   |
| Melt Mass-Flow Rate (300°C/1.2 kg)           | 3.0              | g/10 min          | ASTM D1238   |
| Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)     | 3.0              | g/10 min          | ISO 1133     |
| Molding Shrinkage - Flow                     | 5.0E-3 to 7.0E-3 | in/in             | ASTM D955    |
| Molding Shrinkage - Flow                     | 0.50 to 0.70     | %                 | ISO 294-4    |
| Water Absorption (24 hr, 73°F)               | 0.15             | %                 | ASTM D570    |
| Water Absorption (24 hr, 73°F)               | 0.15             | %                 | ISO 62       |
| Water Absorption (Equilibrium, 73°F, 50% RH) | 0.32             | %                 | ASTM D570    |
| Water Absorption (Equilibrium, 73°F, 50% RH) | 0.32             | %                 | ISO 62       |
| Mechanical                                   | Nominal Value    | Unit              | Test Method  |
| Tensile Modulus <sup>2</sup>                 | 360000           | psi               | ASTM D638    |
| Tensile Modulus                              | 360000           | psi               | ISO 527-2/50 |
| Tensile Strength <sup>2</sup> (Yield)        | 8700             | psi               | ASTM D638    |
| Tensile Stress (Yield)                       | 8700             | psi               | ISO 527-2/50 |

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| Mechanical                                                 | Nominal Value | Unit                  | Test Method             |
|------------------------------------------------------------|---------------|-----------------------|-------------------------|
| Tensile Strength <sup>2</sup> (Break)                      | 10500         | psi                   | ASTM D638               |
| Tensile Stress (Break)                                     | 10400         | psi                   | ISO 527-2/50            |
| Tensile Elongation <sup>2</sup> (Break)                    | 150           | %                     | ASTM D638               |
| Tensile Strain (Break)                                     | 150           | %                     | ISO 527-2/50            |
| Flexural Modulus <sup>3</sup>                              | 350000        | psi                   | ASTM D790               |
| Flexural Modulus <sup>4</sup>                              | 350000        | psi                   | ISO 178                 |
| Flexural Strength <sup>3</sup>                             | 14000         | psi                   | ASTM D790               |
| Flexural Stress <sup>4</sup>                               | 13900         | psi                   | ISO 178                 |
| Taber Abrasion Resistance                                  | 45            | %                     | ASTM D1044              |
| Impact                                                     | Nominal Value | Unit                  | Test Method             |
| Notched Izod Impact (73°F)                                 | 18            | ft-lb/in              | ASTM D256               |
| Notched Izod Impact Strength (73°F)                        | 44            | ft-lb/in <sup>2</sup> | ISO 180/A               |
| Unnotched Izod Impact (73°F)                               | No Break      |                       | ASTM D256               |
| Unnotched Izod Impact Strength (73°F)                      | No Break      |                       | ISO 180                 |
| Instrumented Dart Impact <sup>5</sup> (73°F, Total Energy) | 830           | in-lb                 | ASTM D3763              |
| Tensile Impact Strength                                    | 300           | ft-lb/in <sup>2</sup> | ASTM D1822              |
| Hardness                                                   | Nominal Value | Unit                  | Test Method             |
| Rockwell Hardness                                          |               |                       | ASTM D785               |
| M-Scale                                                    | 74            |                       |                         |
| R-Scale                                                    | 118           |                       |                         |
| Thermal                                                    | Nominal Value | Unit                  | Test Method             |
| Deflection Temperature Under Load (66 psi, Annealed)       | 295           | °F                    | ASTM D648               |
| Heat Deflection Temperature (66 psi, Annealed)             | 295           | °F                    | ISO 75-2/B              |
| Deflection Temperature Under Load<br>264 psi, Unannealed   | 270           | °F                    | ASTM D648               |
| Heat Deflection Temperature (264 psi, Unannealed)          | 270           | °F                    | ISO 75-2/A              |
| Deflection Temperature Under Load (264 psi, Annealed)      | 289           | °F                    | ASTM D648               |
| Heat Deflection Temperature (264 psi, Annealed)            | 289           | °F                    | ISO 75-2/A              |
| Vicat Softening Temperature                                | 304           | °F                    | ASTM D1525 <sup>6</sup> |
| Vicat Softening Temperature                                | 304           | °F                    | ISO 306/B50             |
| CLTE - Flow (-40 to 180°F)                                 | 3.8E-5        | in/in/°F              | ASTM D696               |
| Electrical                                                 | Nominal Value | Unit                  | Test Method             |
| Volume Resistivity                                         | 2.0E+17       | ohms·cm               | ASTM D257               |
| Dielectric Strength                                        | 420           | V/mil                 | ASTM D149               |
| Electric Strength                                          | 430           | V/mil                 | IEC 60243-1             |
| Dielectric Constant                                        |               |                       | ASTM D150               |
| 60 Hz                                                      | 3.00          |                       |                         |
| 1 MHz                                                      | 3.00          |                       |                         |
| Dissipation Factor                                         |               |                       | ASTM D150               |
| 60 Hz                                                      | 1.0E-3        |                       |                         |
| 1 MHz                                                      | 2.0E-3        |                       |                         |
| Flammability                                               | Nominal Value | Unit                  | Test Method             |
| Flame Rating <sup>7</sup>                                  |               |                       | UL 94                   |
| 0.06 in                                                    | HB            |                       |                         |
| 0.13 in                                                    | HB            |                       |                         |
| Oxygen Index <sup>7</sup>                                  | 26            | %                     | ISO 4589-2              |
| Average Extent of Burning                                  | 1             | in                    | ASTM D635               |

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| Optical          | Nominal Value | Unit | Test Method |
|------------------|---------------|------|-------------|
| Refractive Index | 1.586         |      | ASTM D542   |
| Refractive Index | 1.586         |      | ISO 489     |
| Transmittance    | 89.0          | %    | ASTM D1003  |
| Haze             | 1.00          | %    | ASTM D1003  |

### Notes

- <sup>1</sup> Typical properties: these are not to be construed as specifications.
- <sup>2</sup> 2.0 in/min
- <sup>3</sup> Method I (3 point load), 0.079 in/min
- <sup>4</sup> 0.079 in/min
- <sup>5</sup> 11.1 ft/sec
- <sup>6</sup> Rate A (50°C/h), Loading 2 (50 N)
- <sup>7</sup> This rating not intended to reflect hazards presented by this or any other material under actual fire conditions.