TRINSEO™

# CALIBRE™ MEGARAD™ 2081-6LR
## Polycarbonate Resin

## Overview

CALIBRE™ MEGARAD™ 2081-6LR Polycarbonate resin was developed for medical applications requiring improved resistance to lipids over standard polycarbonate resins. When exposed to a 20% intralipid emulsion solution under strained conditions, CALIBRE MEGARAD 2081-6LR exhibits significant property retention compared to standard polycarbonate. It also provides end-users of radiation sterilized medical devices a color closer to the water-clear look of the natural resin. When exposed to high energy radiation (gamma or electron beam), CALIBRE MEGARAD 2081-6LR can reduce the color shift by 50% compared to general purpose polycarbonate resins.

CALIBRE MEGARAD 2081-6LR has been evaluated with respect to ISO 10993 (Biological Evaluation of Medical Devices) and is suitable for use in approved medical applications.

Main Characteristics

- Improved lipid resistance
- Stabilized for high-energy radiation
- Transparent
- Contains mold release
- Tested under ISO 10993

Applications

- Medical applications
- Fluid Delivery applications

| Physical | Nominal Value | (English) | Nominal Value | (SI) | Test Method |
|---|---|---|---|---|---|
| Density | 1.20 | g/cm³ | 1.20 | g/cm³ | ASTM D792<br>ISO 1183 |
| Melt Mass-Flow Rate (MFR) (300°C/1.2 kg) | 6.0 | g/10 min | 6.0 | g/10 min | ASTM D1238<br>ISO 1133 |
| Molding Shrinkage - Flow | 5.0E-3 to 7.0E-3 | in/in | 0.50 to 0.70 | % | ASTM D955 |
| Water Absorption | | | | | |
| 24 hr, 73°F (23°C) | 0.15 | % | 0.15 | % | ASTM D570<br>ISO 62 |
| Equilibrium, 73°F (23°C), 50% RH | 0.32 | % | 0.32 | % | ASTM D570 |
| **Mechanical** | **Nominal Value** | **(English)** | **Nominal Value** | **(SI)** | **Test Method** |
| Tensile Modulus [1] | 340000 | psi | 2340 | MPa | ASTM D638 |
| Tensile Strength [2] | | | | | ASTM D638 |
| Yield | 9570 | psi | 66.0 | MPa | |
| Break | 9860 | psi | 68.0 | MPa | |
| Tensile Elongation [2] | | | | | ASTM D638 |
| Yield | 6.0 | % | 6.0 | % | |
| Break | 130 | % | 130 | % | |
| Flexural Modulus | 350000 | psi | 2410 | MPa | ASTM D790 |
| Flexural Strength | 14000 | psi | 96.5 | MPa | ASTM D790 |
| **Impact** | **Nominal Value** | **(English)** | **Nominal Value** | **(SI)** | **Test Method** |
| Notched Izod Impact (73°F (23°C)) | 16 | ft·lb/in | 850 | J/m | ASTM D256 |
| Instrumented Dart Impact [3] | | | | | ASTM D3763 |
| 73°F (23°C), Total Energy | 790 | in·lb | 89.3 | J | |
| Tensile Impact Strength | 270 | ft·lb/in² | 567 | kJ/m² | ASTM D1822 |
| **Hardness** | **Nominal Value** | **(English)** | **Nominal Value** | **(SI)** | **Test Method** |
| Rockwell Hardness (R-Scale) | 118 | | 118 | | ASTM D785 |

| Thermal | Nominal Value | (English) | Nominal Value | (SI) | Test Method |
|---|---|---|---|---|---|
| Deflection Temperature Under Load | | | | | ASTM D648 |
| 66 psi (0.45 MPa), Unannealed | 275 | °F | 135 | °C | |
| 264 psi (1.8 MPa), Unannealed | 252 | °F | 122 | °C | |
| Vicat Softening Temperature | | | | | |
| -- | 298 | °F | 148 | °C | ASTM D1525 [4] |
| -- | 284 | °F | 140 | °C | ISO 306/B50 |
| CLTE - Flow (-40 to 176°F (-40 to 80°C)) | 3.8E-5 | in/in/°F | 6.8E-5 | cm/cm/°C | ASTM D696 |
| **Electrical** | **Nominal Value** | **(English)** | **Nominal Value** | **(SI)** | **Test Method** |
| Volume Resistivity | 2.0E+17 | ohms·cm | 2.0E+17 | ohms·cm | ASTM D257 |
| Dielectric Strength | | | | | |
| -- | 420 | V/mil | 17 | kV/mm | ASTM D149 |
| -- | 430 | V/mil | 17 | kV/mm | IEC 60243-1 |
| Dielectric Constant | | | | | ASTM D150 |
| 60 Hz | 3.00 | | 3.00 | | |
| 1 MHz | 3.00 | | 3.00 | | |
| Dissipation Factor | | | | | ASTM D150 |
| 50 Hz | 1.0E-3 | | 1.0E-3 | | |
| 1 MHz | 2.0E-3 | | 2.0E-3 | | |
| **Optical** | **Nominal Value** | **(English)** | **Nominal Value** | **(SI)** | **Test Method** |
| Refractive Index | 1.586 | | 1.586 | | ASTM D542<br>ISO 489 |
| Light Transmittance | 71.0 to 85.0 | % | 71.0 to 85.0 | % | ASTM D1003 |
| Haze | < 2.00 | % | < 2.00 | % | ASTM D1003 |

| Injection | Nominal Value | (English) | Nominal Value | (SI) |
|---|---|---|---|---|
| Drying Temperature | 248 | °F | 120 | °C |
| Drying Time | 4.0 | hr | 4.0 | hr |
| Processing (Melt) Temp | 554 to 626 | °F | 290 to 330 | °C |
| Mold Temperature | 176 to 230 | °F | 80 to 110 | °C |