

# Makrolon® 8025

## Polycarbonate

### Bayer MaterialScience AG



#### Product Description

MVR (300 °C/1.2 kg) 6.0 cm<sup>3</sup>/10 min; 20 % Glass fiber reinforced; High viscosity; Easy release; Extrusion; Injection molding - Melt temperature 310 - 330 °C; available in opaque colors only; Precision parts

#### General

|                        |   |   |   |
|------------------------|---|---|---|
| Material Status        | • Commercial: Active  |   |   |
| Availability           | • Africa & Middle East  | • Europe  |   |
| Filler / Reinforcement | • Milled Glass Fiber, 20% Filler by Weight  |   |   |
| Features               | • Good Mold Release   | • High Viscosity  |   |
| Appearance             | • Opaque  |   |   |
| Forms                  | • Pellets   |   |   |
| Multi-Point Data       | • Creep Modulus vs. Time (ISO 11403-1)<br>• Isochronous Stress vs. Strain (ISO 11403-1) | • Isothermal Stress vs. Strain (ISO 11403-1)<br>• Secant Modulus vs. Strain (ISO 11403-1) | • Shear Modulus vs. Temperature (ISO 11403-1)<br>• Viscosity vs. Shear Rate (ISO 11403-2) |

| Physical                                   | Nominal Value Unit          | Test Method |
|--|-----------------------------|-------------|
| Density                                    | 1.34 g/cm <sup>3</sup>      | ISO 1183    |
| Apparent Density <sup>2</sup>              | 0.69 g/cm <sup>3</sup>      | ISO 60      |
| Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)   | 6.5 g/10 min                | ISO 1133    |
| Melt Volume-Flow Rate (MVR) (300°C/1.2 kg) | 6.00 cm <sup>3</sup> /10min | ISO 1133    |
| Molding Shrinkage                          |                             |             |
| Across Flow                                | 0.30 to 0.45 %              | ISO 2577    |
| Flow                                       | 0.30 to 0.45 %              | ISO 2577    |
| Across Flow: 2.00 mm <sup>3</sup>          | 0.35 %                      | ISO 294-4   |
| Flow: 2.00 mm <sup>3</sup>                 | 0.55 %                      | ISO 294-4   |
| Water Absorption                           |                             | ISO 62      |
| Saturation, 23°C                           | 0.24 %                      |             |
| Equilibrium, 23°C, 50% RH                  | 0.10 %                      |             |

| Mechanical   | Nominal Value Unit | Test Method  |
|--|--------------------|--------------|
| Tensile Modulus (23°C)                                   | 4000 MPa           | ISO 527-2/1  |
| Tensile Stress   |                    |              |
| Yield, 23°C  | 58.0 MPa           | ISO 527-2/50 |
| Break, 23°C  | 50.0 MPa           | ISO 527-2/5  |
| Tensile Strain   |                    |              |
| Yield, 23°C  | 3.5 %              | ISO 527-2/50 |
| Break, 23°C  | 6.5 %              | ISO 527-2/5  |
| Tensile Creep Modulus                                    |                    | ISO 899-1    |
| 1 hr   | 3700 MPa           |              |
| 1000 hr  | 3500 MPa           |              |
| Flexural Modulus <sup>4</sup> (23°C)                     | 3700 MPa           | ISO 178      |
| Flexural Strength <sup>4</sup>                           |                    | ISO 178      |
| 3.5% Strain, 23°C  | 95.0 MPa           |              |
| 23°C   | 100 MPa            |              |
| Flexural Strain at Flexural Strength <sup>5</sup> (23°C) | 5.4 %              | ISO 178      |

| Impact  | Nominal Value Unit   | Test Method    |
|---|----------------------|----------------|
| Charpy Notched Impact Strength <sup>6</sup><br>23°C, Complete Break | 12 kJ/m <sup>2</sup> | ISO 179/1eA    |
| Charpy Unnotched Impact Strength<br>-60°C, Complete Break           | 65 kJ/m <sup>2</sup> | ISO 179/1eU    |
| -30°C, Complete Break   | 65 kJ/m <sup>2</sup> |                |
| 23°C, Complete Break  | 55 kJ/m <sup>2</sup> |                |
| Notched Izod Impact Strength <sup>7</sup><br>23°C, Complete Break   | 12 kJ/m <sup>2</sup> | ISO 180/A      |
| Multi-Axial Instrumented Impact Energy<br>-30°C                     | 10.0 J               | ISO 6603-2     |
| 23°C  | 20.0 J               |                |
| Multi-Axial Instrumented Impact Peak Force<br>-30°C                 | 2800 N               | ISO 6603-2     |
| 23°C  | 3300 N               |                |
| Hardness  | Nominal Value Unit   | Test Method    |
| Ball Indentation Hardness   | 136 MPa              | ISO 2039-1     |
| Thermal   | Nominal Value Unit   | Test Method    |
| Heat Deflection Temperature<br>0.45 MPa, Unannealed                 | 141 °C               | ISO 75-2/B     |
| 1.8 MPa, Unannealed   | 134 °C               | ISO 75-2/A     |
| Vicat Softening Temperature<br>--                                   | 146 °C               | ISO 306/B50    |
| --  | 147 °C               | ISO 306/B120   |
| Ball Pressure Test (137°C)  | Pass                 | IEC 60695-10-2 |
| CLTE<br>Flow: 23 to 55°C  | 0.000045 cm/cm/°C    | ISO 11359-2    |
| Transverse: 23 to 55°C  | 0.000055 cm/cm/°C    |                |
| Thermal Conductivity (23°C)   | 0.23 W/m/K           | ISO 8302       |
| RTI Elec (1.50 mm)  | 125 °C               | UL 746         |
| RTI Imp (1.50 mm)   | 115 °C               | UL 746         |
| RTI Str (1.50 mm)   | 125 °C               | UL 746         |
| Electrical  | Nominal Value Unit   | Test Method    |
| Surface Resistivity   | 1.0E+16 ohm          | IEC 60093      |
| Volume Resistivity (23°C)   | 1.0E+16 ohm·cm       | IEC 60093      |
| Electric Strength (23°C, 1.00 mm)                                   | 36 kV/mm             | IEC 60243-1    |
| Relative Permittivity<br>23°C, 100 Hz                               | 3.30                 | IEC 60250      |
| 23°C, 1 MHz   | 3.30                 |                |
| Dissipation Factor<br>23°C, 100 Hz                                  | 0.0010               | IEC 60250      |
| 23°C, 1 MHz   | 0.0090               |                |
| Comparative Tracking Index<br>Solution A                            | 175 V                | IEC 60112      |
| Solution B  | 125 V                |                |

| Flammability  | Nominal Value Unit | Test Method     |
|---|--------------------|-----------------|
| Flame Rating  |                    | UL 94           |
| 6.00 mm   | V-1                |                 |
| 1.50 mm   | V-2                |                 |
| Glow Wire Flammability Index                        |                    | IEC 60695-2-12  |
| 0.750 mm  | 800 °C             |                 |
| 1.50 mm   | 960 °C             |                 |
| 2.00 mm   | 960 °C             |                 |
| 3.00 mm   | 960 °C             |                 |
| 4.00 mm   | 960 °C             |                 |
| Glow Wire Ignition Temperature                      |                    | IEC 60695-2-13  |
| 0.750 mm  | 850 °C             |                 |
| 2.00 mm   | 875 °C             |                 |
| 3.00 mm   | 875 °C             |                 |
| Oxygen Index <sup>8</sup>                           | 32 %               | ISO 4589-2      |
| Application of Flame from Small Burner <sup>9</sup> |                    | DIN 53438-1, -3 |
| 2.00 mm   | K1, F1             |                 |
| Burning Rate <sup>10</sup> (< 1.00 mm)              | Passed             | ISO 3795        |
| Flash Ignition Temperature                          | 470 °C             | ASTM D1929      |
| Needle Flame Test                                   |                    | IEC 60695-11-5  |
| Method F: 1.00 mm                                   | 2.0 min            |                 |
| Method F: 2.00 mm                                   | 2.0 min            |                 |
| Method F: 3.00 mm                                   | 2.0 min            |                 |
| Method K: 1.50 mm                                   | 1.0 min            |                 |
| Method K: 2.00 mm                                   | 1.0 min            |                 |
| Method K: 3.00 mm                                   | 2.0 min            |                 |
| Self Ignition Temperature                           | 550 °C             | ASTM D1929      |
| Additional Information                              | Nominal Value Unit | Test Method     |
| Electrolytical Corrosion                            | A1                 | IEC 60426       |

| Injection              | Nominal Value Unit |
|------------------------|--------------------|
| Processing (Melt) Temp | 310 to 330 °C      |

**Notes**

- <sup>1</sup> Typical properties: these are not to be construed as specifications.
- <sup>2</sup> Pellets
- <sup>3</sup> 60x60x2 mm, 500 bar
- <sup>4</sup> 2.0 mm/min
- <sup>5</sup> 2 mm/min
- <sup>6</sup> 3 mm
- <sup>7</sup> 3.2 mm
- <sup>8</sup> Procedure A
- <sup>9</sup> Method K and F
- <sup>10</sup> US-FMVSS