



# Makrolon LQ3187

## Speciality grades / Optical lens

Global grade; MFR 6.5 g/10 min; Lens quality; High viscosity; UV stabilized; UV 400 cut off; Easy release; Injection molding; Available in clear tints only; Safety glasses; Sun glasses

## ISO Shortname

ISO 7391-PC,MLR,61-09-9

| Property                                                 | Test Condition                          | Unit                           | Standard    | Value       |
|----------------------------------------------------------|-----------------------------------------|--------------------------------|-------------|-------------|
| <b>Rheological properties</b>                            |                                         |                                |             |             |
| Melt flow rate                                           | 300 °C / 1.2 kg                         | g/(10 min)                     | ASTM D 1238 | 6.5         |
| Mold shrinkage, flow/cross to flow                       |                                         | in/in                          | ASTM D 955  | 0.006-0.008 |
| <b>Mechanical properties (23 °C/50 % r.h.)</b>           |                                         |                                |             |             |
| Tensile modulus                                          | 1 mm/min                                | lb/in <sup>2</sup>             | ASTM D 638  | 350000      |
| Tensile stress at yield                                  | -                                       | lb/in <sup>2</sup>             | ASTM D 638  | 9400        |
| Tensile elongation at yield                              | -                                       | %                              | ASTM D 638  | 6.0         |
| Tensile elongation at break                              | -                                       | %                              | ASTM D 638  | 100         |
| Tensile stress at break                                  | -                                       | lb/in <sup>2</sup>             | ASTM D 638  | 9400        |
| Izod notched impact strength                             | 73 °F, 0.125 in                         | ft-lb/in                       | ASTM D 256  | 17          |
| Flexural modulus                                         | -                                       | lb/in <sup>2</sup>             | ASTM D 790  | 340000      |
| Flexural stress at 5 % strain                            |                                         | lb/in <sup>2</sup>             | ASTM D 790  | 12500       |
| Rockwell hardness                                        |                                         | M Scale                        | ASTM D 785  | 75          |
| Rockwell hardness                                        |                                         | R Scale                        | ASTM D 785  | 120         |
| <b>Thermal properties</b>                                |                                         |                                |             |             |
| Deflection temperature under load, Unannealed            | 264 psi; 0.250 in                       | °F                             | ASTM D 648  | 266         |
| Deflection temperature under load, Unannealed            | 66 psi; 0.250 in                        | °F                             | ASTM D 648  | 284         |
| Vicat softening temperature                              | 50 N, 50 °C/h                           | °F                             | ASTM D 1525 | 293         |
| Coefficient of linear thermal expansion, flow/cross-flow |                                         | in/in/°F                       | ASTM D 696  | 3.34E-05    |
| Thermal conductivity                                     |                                         | Btu*in/(h*ft <sup>2</sup> *°F) | ASTM C 177  | 1.39        |
| Specific heat                                            |                                         | Btu/(lb*°F)                    | ASTM D 2766 | 0.28        |
| <b>Electrical properties (23 °C/50 % r.h.)</b>           |                                         |                                |             |             |
| Dissipation factor, Tinfoil electrodes                   | 60 Hz                                   | -                              | ASTM D 150  | 0.0009      |
| Dissipation factor, Tinfoil electrodes                   | 1 MHz                                   | -                              | ASTM D 150  | 0.01        |
| Dielectric constant, Tinfoil electrodes                  | 60 Hz                                   | -                              | ASTM D 150  | 3.0         |
| Dielectric constant, Tinfoil electrodes                  | 1 MHz                                   | -                              | ASTM D 150  | 2.9         |
| Volume resistivity, Tinfoil electrodes                   |                                         | Ohm-m                          | ASTM D 257  | 1.0 E+14    |
| Surface resistivity                                      |                                         | Ohm                            | ASTM D 257  | 1.0 E+16    |
| Dielectric strength                                      | Short time under oil at 73 °F; 0.162 in | V/mil                          | ASTM D 149  | 810         |
| <b>Other properties (23 °C)</b>                          |                                         |                                |             |             |
| Water absorption                                         | 73 °F; Immersion to saturation          | %                              | ASTM D 570  | 0.3         |
| Water absorption                                         | 73 °F; Immersion 24 h                   | %                              | ASTM D 570  | 0.12        |
| Density                                                  |                                         | lb/in <sup>3</sup>             | ASTM D 792  | 0.043       |
| Specific volume                                          |                                         | in <sup>3</sup> /lb            | ASTM D 792  | 23.1        |
| Specific gravity                                         |                                         | -                              | ASTM D 792  | 1.2         |
| <b>Material specific properties</b>                      |                                         |                                |             |             |
| Refractive index                                         |                                         | -                              | ASTM D 542  | 1.587       |
| Luminous transmittance (clear transparent materials)     | 0.125 in                                | %                              | ASTM D 1003 | 88          |
| Haze for transparent materials                           | 0.125 in                                | %                              | ASTM D 1003 | 1.0         |