

# Makrolon® 1837 MAS081

Polycarbonate

Covestro - Polycarbonates

## Message:

MVR (300 °C/1.2 kg) 8.0 cm<sup>3</sup>/10 min; impact modified; medium viscosity; easy release; injection molding - melt temperature 280 - 320 °C; available in opaque colors only

| General Information                        |                   |                        |              |
|--------------------------------------------|-------------------|------------------------|--------------|
| Additive                                   | Impact Modifier   |                        |              |
| Features                                   | Good Mold Release |                        |              |
|                                            | Impact Modified   |                        |              |
|                                            | Medium Viscosity  |                        |              |
| RoHS Compliance                            | RoHS Compliant    |                        |              |
| Appearance                                 | Colors Available  |                        |              |
|                                            | Opaque            |                        |              |
| Processing Method                          | Injection Molding |                        |              |
| Physical                                   | Nominal Value     | Unit                   | Test Method  |
| Density (23°C)                             | 1.19              | g/cm <sup>3</sup>      | ISO 1183     |
| Apparent Density <sup>1</sup>              | 0.64              | g/cm <sup>3</sup>      | ISO 60       |
| Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)   | 8.5               | g/10 min               | ISO 1133     |
| Melt Volume-Flow Rate (MVR) (300°C/1.2 kg) | 8.00              | cm <sup>3</sup> /10min | ISO 1133     |
| Molding Shrinkage                          |                   |                        |              |
| Across Flow                                | 0.60 to 0.80      | %                      | ISO 2577     |
| Flow                                       | 0.60 to 0.80      | %                      | ISO 2577     |
| Across Flow : 2.00 mm <sup>2</sup>         | 0.70              | %                      | ISO 294-4    |
| Flow : 2.00 mm <sup>3</sup>                | 0.65              | %                      | ISO 294-4    |
| Water Absorption                           |                   |                        |              |
| Saturation, 23°C                           | 0.40              | %                      | ISO 62       |
| Equilibrium, 23°C, 50% RH                  | 0.12              | %                      |              |
| Hardness                                   | Nominal Value     | Unit                   | Test Method  |
| Ball Indentation Hardness                  | 104               | MPa                    | ISO 2039-1   |
| Mechanical                                 | Nominal Value     | Unit                   | Test Method  |
| Tensile Modulus (23°C)                     | 2200              | MPa                    | ISO 527-2/1  |
| Tensile Stress                             |                   |                        | ISO 527-2/50 |
| Yield, 23°C                                | 58.0              | MPa                    | ISO 527-2/50 |
| Break, 23°C                                | 60.0              | MPa                    |              |
| Tensile Strain                             |                   |                        | ISO 527-2/50 |
| Yield, 23°C                                | 5.7               | %                      |              |

| Break, 23°C                                              | 120                      | %                 |                |
|----------------------------------------------------------|--------------------------|-------------------|----------------|
| Nominal Tensile Strain at Break (23°C)                   | > 50                     | %                 | ISO 527-2/50   |
| Flexural Modulus <sup>4</sup> (23°C)                     | 2200                     | MPa               | ISO 178        |
| Flexural Stress <sup>5</sup>                             |                          |                   | ISO 178        |
| 3.5% Strain, 23°C                                        | 68.0                     | MPa               |                |
| 23°C                                                     | 86.0                     | MPa               |                |
| Flexural Strain at Flexural Strength (23°C) <sup>6</sup> | 6.8                      | %                 | ISO 178        |
| Burning Rate - US-FMVSS (> 1.00 mm)                      | passed                   |                   | ISO 3795       |
| Flash Ignition Temperature                               | 450                      | °C                | ASTM D1929     |
| Needle Flame Test                                        |                          |                   | IEC 60695-11-5 |
| Method F : 1.50 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                                       | 0.1                      | min               |                |
| Method K : 2.00 mm                                       | 0.1                      | min               |                |
| Method K : 3.00 mm                                       | 0.2                      | min               |                |
| Self Ignition Temperature                                | 530                      | °C                | ASTM D1929     |
| ISO Shortname                                            | ISO 7391-PC,MP,(,,)-09-9 |                   |                |
| Impact                                                   | Nominal Value            | Unit              | Test Method    |
| Charpy Notched Impact Strength <sup>7</sup>              |                          |                   | ISO 7391       |
| -30°C, Partial Break                                     | 50                       | kJ/m <sup>2</sup> |                |
| 23°C, Partial Break                                      | 60                       | kJ/m <sup>2</sup> |                |
| Charpy Unnotched Impact Strength                         |                          |                   | ISO 179/1eU    |
| -60°C                                                    | No Break                 |                   |                |
| -30°C                                                    | No Break                 |                   |                |
| 23°C                                                     | No Break                 |                   |                |
| Notched Izod Impact Strength <sup>8</sup>                |                          |                   | ISO 7391       |
| -30°C, Complete Break                                    | 45                       | kJ/m <sup>2</sup> |                |
| 23°C, Partial Break                                      | 60                       | kJ/m <sup>2</sup> |                |
| Multi-Axial Instrumented Impact Energy                   |                          |                   | ISO 6603-2     |
| -30°C                                                    | 55.0                     | J                 |                |
| 23°C                                                     | 50.0                     | J                 |                |
| Multi-Axial Instrumented Impact Peak Force               |                          |                   | ISO 6603-2     |
| -30°C                                                    | 5800                     | N                 |                |
| 23°C                                                     | 4900                     | N                 |                |
| Thermal                                                  | Nominal Value            | Unit              | Test Method    |
| Heat Deflection Temperature                              |                          |                   |                |
| 0.45 MPa, Unannealed                                     | 134                      | °C                | ISO 75-2/B     |
| 1.8 MPa, Unannealed                                      | 121                      | °C                | ISO 75-2/A     |
| Vicat Softening Temperature                              |                          |                   |                |
| --                                                       | 141                      | °C                | ISO 306/B50    |

|                                          |                            |             |                    |
|------------------------------------------|----------------------------|-------------|--------------------|
| --                                       | 143                        | °C          | ISO 306/B120       |
| Ball Pressure Test (134°C)               | Pass                       |             | IEC 60695-10-2     |
| CLTE                                     |                            |             | ISO 11359-2        |
| Flow : 23 to 55°C                        | 7.0E-5                     | cm/cm/°C    |                    |
| Transverse : 23 to 55°C                  | 7.0E-5                     | cm/cm/°C    |                    |
| Thermal Conductivity <sup>9</sup> (23°C) | 0.20                       | W/m/K       | ISO 8302           |
| <b>Electrical</b>                        | <b>Nominal Value</b>       | <b>Unit</b> | <b>Test Method</b> |
| Surface Resistivity                      | 1.0E+16                    | ohms        | IEC 60093          |
| Volume Resistivity (23°C)                | 1.0E+16                    | ohms·cm     | IEC 60093          |
| Electric Strength (23°C, 1.00 mm)        | 34                         | kV/mm       | IEC 60243-1        |
| Relative Permittivity                    |                            |             | IEC 60250          |
| 23°C, 100 Hz                             | 3.20                       |             |                    |
| 23°C, 1 MHz                              | 3.10                       |             |                    |
| Dissipation Factor                       |                            |             | IEC 60250          |
| 23°C, 100 Hz                             | 1.4E-3                     |             |                    |
| 23°C, 1 MHz                              | 0.013                      |             |                    |
| Comparative Tracking Index               |                            |             | IEC 60112          |
| Solution A                               | 225                        | V           |                    |
| Solution B                               | 100                        | V           |                    |
| <b>Flammability</b>                      | <b>Nominal Value</b>       | <b>Unit</b> | <b>Test Method</b> |
| Flame Rating (0.750 mm)                  | HB                         |             | UL 94              |
| Glow Wire Flammability Index             |                            |             | IEC 60695-2-12     |
| 0.750 mm                                 | 850                        | °C          |                    |
| 1.50 mm                                  | 875                        | °C          |                    |
| 3.00 mm                                  | 900                        | °C          |                    |
| Glow Wire Ignition Temperature           |                            |             | IEC 60695-2-13     |
| 1.50 mm                                  | 825                        | °C          |                    |
| 2.00 mm                                  | 825                        | °C          |                    |
| 3.00 mm                                  | 850                        | °C          |                    |
| Oxygen Index <sup>10</sup>               | 30                         | %           | ISO 4589-2         |
| <b>NOTE</b>                              |                            |             |                    |
| 1.                                       | Pellets                    |             |                    |
| 2.                                       | 60x60x2 mm, 500 bar        |             |                    |
| 3.                                       | 60x60x2 mm, 500 bar        |             |                    |
| 4.                                       | 2.0 mm/min                 |             |                    |
| 5.                                       | 2.0 mm/min                 |             |                    |
| 6.                                       | 2 mm/min                   |             |                    |
| 7.                                       | Based on ISO 179-1eA, 3 mm |             |                    |
| 8.                                       | Based on ISO 180-A, 3 mm   |             |                    |
| 9.                                       | Cross-flow                 |             |                    |
| 10.                                      | Procedure A                |             |                    |

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