

Product Data Sheet, February 2014

# Makrolon® Vista QX10

## Solid polycarbonate sheet



### Your benefits:

- enhanced optical quality
- extreme impact strength
- resistance to a wide range of temperatures

Solid **Makrolon® Vista QX10** sheets are clear, polished, UV-stabilized polycarbonate sheets. They offer extreme impact strength that exceeds the physical properties of other products of their class. **Makrolon® Vista QX10** sheets resist temperatures of -100 to +120 °C, exhibit high optical clarity and have good fire properties.

**Makrolon® Vista QX10 clear 099** is a clear transparent sheet with high light transmission.

### Applications:

Typical applications for **Makrolon® Vista QX10** sheets include machine guards, signs, glazing in general, visors as well as panoramic roofs and rear windows of high priced automobiles.

The sheets offer protection against involuntary breakage and wilfull destruction. **Makrolon® Vista QX10** sheets can be thermoformed, cold-curved and machined with ease. They can be coated, laminated and printed.

|   | Test Conditions              | Typical values <sup>(1)</sup> | Unit                | Standard        |
|---|------------------------------|-------------------------------|---------------------|-----------------|
| <b>Physical</b>                         |                              |                               |                     |                 |
| Density                                 |                              | 1200                          | kg/m <sup>3</sup>   | ISO 1183-1      |
| Water absorption saturation             | water at 23 °C               | 0.30                          | %                   | ISO 62          |
| Water absorption equilibrium            | 23 °C, 50% relative humidity | 0.12                          | %                   | ISO 62          |
| Refractive index                        | Procedure A                  | 1.587                         | –                   | ISO 489         |
| <b>Mechanical</b>                       |                              |                               |                     |                 |
| Tensile modulus                         | 1 mm/min                     | 2350                          | MPa                 | ISO 527-1,-2    |
| Yield stress                            | 50 mm/min                    | > 60                          | MPa                 | ISO 527-1,-2    |
| Yield strain                            | 50 mm/min                    | 6                             | %                   | ISO 527-1,-2    |
| Nominal strain at break                 | 50 mm/min                    | > 50                          | %                   | ISO 527-1,-2    |
| Flexural modulus                        | 2 mm/min                     | 2350                          | MPa                 | ISO 178         |
| Flexural strength                       | 2 mm/min                     | 90                            | MPa                 | ISO 178         |
| Charpy impact strength                  | 23 °C, unnotched             | non-break                     | kJ/m <sup>2</sup>   | ISO 179-1eU     |
| Charpy impact strength                  | 23 °C, 3 mm, notched         | 80P                           | kJ/m <sup>2</sup>   | ISO 179-1eA     |
| Izod impact strength                    | 23 °C, 3.2 mm, notched       | 90P                           | kJ/m <sup>2</sup>   | ISO 180-A       |
| <b>Thermal</b>                          |                              |                               |                     |                 |
| Vicat softening temperature             | 50 N, 50°C/h                 | 148                           | °C                  | ISO 306         |
| Thermal conductivity                    | 23°C                         | 0.20                          | W/(mK)              | ISO 8302        |
| Coefficient of linear thermal expansion | 23 to 55°C                   | 0.65                          | 10 <sup>-4</sup> /K | ISO 11359-1, -2 |
| Temperature of deflection under load    | 1.80 Mpa                     | 128                           | °C                  | ISO 75-1, -2    |
| Temperature of deflection under load    | 0.45 Mpa                     | 140                           | °C                  | ISO 75-1, -2    |
| <b>Electrical</b>                       |                              |                               |                     |                 |
| Electrical strength                     | 1 mm                         | 34                            | kV/mm               | IEC 60243-1     |
| Volume resistivity                      |                              | 1E14                          | Ohm.m               | IEC 60093       |
| Surface resistivity                     |                              | 1E16                          | Ohm                 | IEC 60093       |
| Relative permittivity                   | 100 Hz                       | 3.1                           | –                   | IEC 60250       |
| Relative permittivity                   | 1 MHz                        | 3.0                           | –                   | IEC 60250       |
| Dissipation factor                      | 100 Hz                       | 5 · 10 <sup>-4</sup>          | –                   | IEC 60250       |
| Dissipation factor                      | 1 MHz                        | 95 · 10 <sup>-4</sup>         | –                   | IEC 60250       |

<sup>(1)</sup> These values are measured on injection molded samples, and are not intended for specification purposes.

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Bayer MaterialScience i-line represents the next generation of quality products. This seal guarantees innovative and intelligent first-class solutions at all times for a multitude of requirements.

**Light Transmission:** Test Method according to DIN 5036

The stated thicknesses are not all available as standard. Please ask us for more information. The stated values are typical values only.

| Light transmission %         | 3  | 4  | 5  | 6  | 8  | 10 | 12 |
|------------------------------|----|----|----|----|----|----|----|
| Makrolon® Vista QX clear 099 | 88 | 87 | 87 | 86 | 85 | 83 | 82 |

**Available sizes:** Makrolon® Vista QX10 sheets are available in thicknesses of 3 – 12 mm and in the following sizes; other sizes, colors and sheet thicknesses on request.

**Sizes (standard):**

3,050 x 2,050 mm

**Permanent Service Temperature:** The permanent service temperature without load is approx. 120 °C.



**Bayer MaterialScience**

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