

Makrolon® DQ5142

/ MVR (300 °C/1.2 kg) 34 cm³/10 min; light diffusion grade; medium diffusion; low viscosity; UV stabilized; easy release; injection molding - melt temperature 250 - 300 °C; available in translucent colors only

ISO Shortname PC

Property Test Condition Unit Standard typical Value

Rheological properties

| | | | | |
|-------------------------------|---------------------|-------------------------|-----------|------|
| C Melt volume-flow rate | 300 °C/ 1.2 kg | cm ³ /10 min | ISO 1133 | 34 |
| C Molding shrinkage, parallel | 60x60x2 mm/ 500 bar | % | ISO 294-4 | 0.65 |
| C Molding shrinkage, normal | 60x60x2 mm/ 500 bar | % | ISO 294-4 | 0.65 |

Mechanical properties (23 °C/50 % r. h.)

| | | | | |
|--|--------------|-------------------|--------------------------------|-------|
| C Tensile modulus | 1 mm/min | MPa | ISO 527-1,-2 | 2300 |
| C Yield stress | 50 mm/min | MPa | ISO 527-1,-2 | 65 |
| C Yield strain | 50 mm/min | % | ISO 527-1,-2 | 6 |
| C Nominal strain at break | 50 mm/min | % | ISO 527-1,-2 | > 50 |
| Stress at break | 50 mm/min | MPa | ISO 527-1,-2 | 60 |
| Strain at break | 50 mm/min | % | b.o. ISO 527-1,-2 | 110 |
| C Charpy impact strength | 23 °C | kJ/m ² | ISO 179/1eU | N |
| C Charpy impact strength | -30 °C | kJ/m ² | ISO 179/1eU | N |
| Charpy notched impact strength | 23 °C/ 3 mm | kJ/m ² | ISO 21305/based on ISO 179/1eA | 12(C) |
| Charpy notched impact strength | -30 °C/ 3 mm | kJ/m ² | ISO 21305/based on ISO 179/1eA | 12(C) |
| C Puncture impact properties - maximum force | 23 °C | N | ISO 6603-2 | 4900 |
| C Puncture impact properties - maximum force | -30 °C | N | ISO 6603-2 | 5900 |
| C Puncture energy | 23 °C | J | ISO 6603-2 | 44 |
| C Puncture energy | -30 °C | J | ISO 6603-2 | 50 |
| Ball indentation hardness | | N/mm ² | ISO 2039-1 | > 120 |

Thermal properties

| | | | | |
|---|---------------|-------|----------------|-----|
| C Temperature of deflection under load | 1.80 MPa | °C | ISO 75-1,-2 | 120 |
| C Temperature of deflection under load | 0.45 MPa | °C | ISO 75-1,-2 | 134 |
| C Vicat softening temperature | 50 N; 50 °C/h | °C | ISO 306 | 140 |
| C Burning behavior UL 94 [UL recognition] | 0.75 mm | Class | UL 94 | V-2 |
| Glow wire test (GWFI) | 0.75 mm | °C | IEC 60695-2-12 | 850 |
| Glow wire test (GWFI) | 1.5 mm | °C | IEC 60695-2-12 | 850 |
| Glow wire test (GWFI) | 3.0 mm | °C | IEC 60695-2-12 | 930 |
| Glow wire test (GWIT) | 0.75 mm | °C | IEC 60695-2-13 | 850 |
| Glow wire test (GWIT) | 1.5 mm | °C | IEC 60695-2-13 | 850 |
| Glow wire test (GWIT) | 3.0 mm | °C | IEC 60695-2-13 | 850 |

Other properties (23 °C)

| | | | | |
|--|-------------------|-------------------|------------|------|
| C Water absorption (saturation value) | Water at 23 °C | % | ISO 62 | 0.30 |
| C Water absorption (equilibrium value) | 23 °C; 50 % r. h. | % | ISO 62 | 0.12 |
| C Density | | kg/m ³ | ISO 1183-1 | 1200 |

Material specific properties

| | | | | |
|------------------------|------|---|---------------|-----|
| Haze | 1 mm | % | ISO 14782 | 100 |
| Luminous transmittance | 1 mm | % | ISO 13468-2 | 80 |
| Luminous transmittance | 2 mm | % | ISO 13468-2 | 65 |
| Luminous transmittance | 3 mm | % | ISO 13468-2 | 54 |
| Luminous transmittance | 4 mm | % | ISO 13468-2 | 47 |
| Half power angle | 1 mm | ° | Covestro Test | 26 |
| Half power angle | 2 mm | ° | Covestro Test | 43 |
| Half power angle | 3 mm | ° | Covestro Test | 50 |
| Half power angle | 4 mm | ° | Covestro Test | 53 |

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| Property | Test Condition | Unit | Standard | typical Value |
|---|----------------|------|----------|---------------|
| Processing conditions for test specimens | | | | |
| C Injection molding - Melt temperature | | °C | ISO 294 | 280 |
| C Injection molding - Mold temperature | | °C | ISO 294 | 80 |
| C Injection molding - Injection velocity | | mm/s | ISO 294 | 200 |
| Recommended processing and drying conditions | | | | |
| Melt temperatures | | °C | - | 250-300 |
| Standard Melt temperature | | °C | - | 270 |
| Barrel Temperatures - Rear | | °C | - | 230-240 |
| Barrel Temperatures - Middle | | °C | - | 250-260 |
| Barrel Temperatures - Front | | °C | - | 260-270 |
| Barrel Temperatures - Nozzle | | °C | - | 260-270 |
| Mold Temperatures | | °C | - | 80 - 120 |
| Hold Pressure (% of injection pressure) | | % | - | 50 - 75 |
| Plastic Back Pressure (specific) | | bar | - | 50 - 150 |
| Peripheral Screw Speed | | m/s | - | 0.05 - 0.2 |
| Shot-to-Cylinder Size | | % | - | 30 - 70 |
| Dry Air Drying Temperature | | °C | - | 120 |
| Dry Air Drying Time | | h | - | 2-3 |
| Moisture Content max. (%) | | % | - | <= 0.02 |
| Vent Depth | | mm | - | 0.025 - 0.075 |

C These property characteristics are taken from the CAMPUS plastics data bank and are based on the international catalogue of basic data for plastics according to ISO 10350.

Impact properties: N = non-break, P = partial break, C = complete break



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Disclaimer

Typical value

These values are typical values only. Unless explicitly agreed in written form, they do not constitute a binding material specification or warranted values. Values may be affected by the design of the mold/die, the processing conditions and coloring/pigmentation of the product. Unless specified to the contrary, the property values given have been established on standardized test specimens at room temperature.

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This product is not designated for the manufacture of a pharmaceutical/medicinal product, medical device or of intermediate products for medical devices¹⁾. This product is also not registered for Covestro for the use in other specifically regulated applications, in particular applications requiring regulatory registration, approval or notification (e.g. including cosmetics, plant protection, food processing, food contact and others). If the intended use of the product is for the manufacture of a pharmaceutical, medical device or of intermediate products for medical devices or for other specifically regulated applications which may lead to a regulatory obligation of Covestro, Covestro must be contacted in advance to provide its agreement to sell such product for such purpose. Nonetheless, any determination as to whether a product is appropriate for use in a pharmaceutical, medical device or intermediate products for medical devices or for the use in other specifically regulated applications, must be made solely by the purchaser of the product without relying upon any representations by Covestro, irrespective of the existence of any regulatory obligation for the registration, approval or notification. 1) Please see the "Guidance on Use of Covestro Products in a Medical Application" document.

Recommended Processing and Drying Conditions

Barrel temperatures are valid for a standard 3-zone barrel. Temperature set-up for different barrel types may change according to configuration. Values for hold pressure as percentage of injection pressure may vary depending on, amongst others, part geometry, injection molding machine and injection mold. Drying conditions are for dry air dryers only. Drying times and drying temperatures may differ depending on valid dryer type. Further information is provided by your local Covestro support as well as in the following brochures: Injection Molding of High Quality Molded Parts - Drying; Determining the Dryness of Makrolon by TVI Test; The fundamentals of shrinkage in thermoplastics; Shrinkage and deformation of glass fiber reinforced thermoplastics [...]. <https://www.plastics.covestro.com/Library/Overview.aspx>

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