

# SABIC® PC RESIN PC1004R

POLYCARBONATE FOR GENERAL PURPOSE MOLDING MARKET

## DESCRIPTION

PC1004R resin is a medium-low flow (MFR = 10 at 300°C/1.2kg), natural, heat stabilized, polycarbonate product with mold release designed for use in the general purpose molding market. This material is food contact compliant in most jurisdictions – exceptions may exist, request a declaration for details.

## TYPICAL APPLICATIONS

PC1004R resin is a medium-low flow (MFR = 10 at 300°C/1.2kg), natural, FDA food contact complaint, heat stabilized, polycarbonate product with mold release designed for use in the general purpose molding market.

## TYPICAL PROPERTY VALUES

Revision 20250819

| PROPERTIES                                            | TYPICAL VALUES | UNITS             | TEST METHODS |
|-------------------------------------------------------|----------------|-------------------|--------------|
| <b>MECHANICAL</b>                                     |                |                   |              |
| Tensile Stress, yld, Type I, 50 mm/min <sup>(1)</sup> | 63             | MPa               | ASTM D638    |
| Tensile Strain, yld, Type I, 50 mm/min                | 6              | %                 | ASTM D638    |
| Tensile Strain, brk, Type I, 50 mm/min                | >70            | %                 | ASTM D638    |
| Tensile Modulus, 50 mm/min                            | 2350           | MPa               | ASTM D638    |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span          | 90             | MPa               | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span              | 2300           | MPa               | ASTM D790    |
| Hardness, Rockwell R                                  | 120            | -                 | ASTM D785    |
| Tensile Stress, yield, 50 mm/min                      | 63             | MPa               | ISO 527      |
| Tensile Strain, yield, 50 mm/min                      | 6              | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min                      | >70            | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                             | 2350           | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min                      | 90             | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                            | 2300           | MPa               | ISO 178      |
| Hardness, Rockwell R                                  | 120            | -                 | ISO 2039-2   |
| <b>IMPACT</b>                                         |                |                   |              |
| Izod Impact, unnotched, 23°C                          | NB             | J/m               | ASTM D4812   |
| Izod Impact, notched, 23°C                            | 800            | J/m               | ASTM D256    |
| Instrumented Dart Impact Energy @ peak, 23°C          | 65             | J                 | ASTM D3763   |
| Izod Impact, unnotched 80*10*3 +23°C                  | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, unnotched 80*10*3 -30°C                  | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, notched 80*10*3 +23°C                    | 70             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*3 -30°C                    | 12             | kJ/m <sup>2</sup> | ISO 180/1A   |
| <b>THERMAL</b>                                        |                |                   |              |
| Vicat Softening Temp, Rate B/50                       | 143            | °C                | ASTM D1525   |
| HDT, 0.45 MPa, 3.2 mm                                 | 138            | °C                | ASTM D648    |
| HDT, 1.82 MPa, 3.2 mm                                 | 127            | °C                | ASTM D648    |
| CTE, -40°C to 95°C, flow                              | 7.E-05         | 1/°C              | ASTM E831    |
| Thermal Conductivity                                  | 0.2            | W/m·°C            | ASTM C177    |
| Thermal Conductivity                                  | 0.2            | W/m·°C            | ISO 8302     |
| CTE, 23°C to 80°C, flow                               | 7.E-05         | 1/°C              | ISO 11359-2  |

| PROPERTIES                                             | TYPICAL VALUES | UNITS                   | TEST METHODS   |
|--------------------------------------------------------|----------------|-------------------------|----------------|
| Ball Pressure Test, 125°C +/- 2°C                      | Passes         | -                       | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50                        | 143            | °C                      | ISO 306        |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm                 | 138            | °C                      | ISO 75/Bf      |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm                  | 127            | °C                      | ISO 75/Af      |
| PHYSICAL                                               |                |                         |                |
| Specific Gravity                                       | 1.2            | -                       | ASTM D792      |
| Water Absorption, (23°C/Saturated)                     | 0.35           | %                       | ASTM D570      |
| Mold Shrinkage on Tensile Bar, flow                    | 0.5 – 0.7      | %                       | SABIC method   |
| Mold Shrinkage, flow, 3.2 mm <sup>(2)</sup>            | 0.5 – 0.7      | %                       | SABIC method   |
| Melt Flow Rate, 300°C/ 1.2 kgf                         | 10             | g/ 10 min               | ASTM D1238     |
| Density                                                | 1.2            | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/saturated)                     | 0.35           | %                       | ISO 62-1       |
| Melt Volume Rate, MVR at 300°C/ 1.2 kg                 | 9              | cm <sup>3</sup> /10 min | ISO 1133       |
| OPTICAL                                                |                |                         |                |
| Light Transmission, 2.54 mm                            | 88 – 90        | %                       | ASTM D1003     |
| Haze, 2.54 mm                                          | <0.8           | %                       | ASTM D1003     |
| Refractive Index                                       | 1.586          | -                       | ASTM D542      |
| Refractive Index                                       | 1.586          | -                       | ISO 489        |
| ELECTRICAL                                             |                |                         |                |
| Volume Resistivity                                     | >1.E+15        | Ω.cm                    | ASTM D257      |
| Dielectric Strength, 1.6 mm                            | 27             | kV/mm                   | ASTM D149      |
| Relative Permittivity, 60 Hz                           | 3              | -                       | ASTM D150      |
| Relative Permittivity, 1 MHz                           | 3              | -                       | ASTM D150      |
| Dissipation Factor, 60 Hz                              | 0.001          | -                       | ASTM D150      |
| Dissipation Factor, 1 MHz                              | 0.01           | -                       | ASTM D150      |
| Volume Resistivity                                     | >1.E+15        | Ω.cm                    | IEC 60093      |
| Dielectric Strength, 1.6 mm                            | 27             | kV/mm                   | IEC 60243-1    |
| Relative Permittivity, 60 Hz                           | 3              | -                       | IEC 60250      |
| Relative Permittivity, 1 MHz                           | 3              | -                       | IEC 60250      |
| Dissipation Factor, 60 Hz                              | 0.001          | -                       | IEC 60250      |
| Dissipation Factor, 1 MHz                              | 0.01           | -                       | IEC 60250      |
| FLAME CHARACTERISTICS                                  |                |                         |                |
| UL Recognized, 94V-2 Flame Class Rating <sup>(3)</sup> | 1.6            | mm                      | UL 94          |
| INJECTION MOLDING                                      |                |                         |                |
| Drying Temperature                                     | 120            | °C                      |                |
| Drying Time                                            | 2 – 4          | Hrs                     |                |
| Maximum Moisture Content                               | 0.02           | %                       |                |
| Melt Temperature                                       | 280 – 310      | °C                      |                |
| Nozzle Temperature                                     | 270 – 290      | °C                      |                |
| Front - Zone 3 Temperature                             | 280 – 310      | °C                      |                |
| Middle - Zone 2 Temperature                            | 270 – 290      | °C                      |                |
| Rear - Zone 1 Temperature                              | 260 – 280      | °C                      |                |
| Hopper Temperature                                     | 60 – 80        | °C                      |                |
| Mold Temperature                                       | 80 – 110       | °C                      |                |



- (1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.
- (2) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.
- (3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

## DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.