

Makrolon® 705 R50

Preliminary Datasheet /

polycarbonate; medium viscosity; easy release; non-reinforced; contains 50% post consumer PC recycle for natural color; injection molding; electrical/electronic

ISO Shortname

PC (REC)

Property	Test Condition	Unit	Standard	typical Value
Rheological properties				
C Melt volume-flow rate	280 °C/ 5 kg	cm³/10 min	ISO 1133	30
Melt volume-flow rate	300 °C/ 1.2 kg	cm³/10 min	ISO 1133	13
C Molding shrinkage, parallel	60x60x2 mm/ 500 bar	%	ISO 294-4	0.68
Molding shrinkage, parallel/normal	Value range based on general practical experience	%	b.o. ISO 2577	0.7
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	60
C Yield strain	50 mm/min	%	ISO 527-1,-2	6.0
Stress at break	50 mm/min	MPa	ISO 527-1,-2	61
Strain at break	50 mm/min	%	b.o. ISO 527-1,-2	110
Flexural modulus	2 mm/min	MPa	ISO 178	2440
Flexural strength	2 mm/min	MPa	ISO 178	97
Flexural strain at flexural strength	2 mm/min	%	ISO 178	6.7
Flexural stress at 3.5 % strain	2 mm/min	MPa	ISO 178	76
Izod notched impact strength	23 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 180/A	67
Izod notched impact strength	0 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 180/A	17
Izod notched impact strength	-10 °C/ 3 mm	kJ/m²	ISO 21305/based on ISO 180/A	17
Izod impact strength	23 °C	kJ/m²	ISO 180/U	N
Izod impact strength	-30 °C	kJ/m²	ISO 180/U	N
Thermal properties				
Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	144
Material specific properties				
Haze	2 mm	%	ISO 14782	6
C Luminous transmittance (clear transparent materials)	2 mm	%	ISO 13468-2	74
Recommended processing and drying conditions				
Melt temperatures		°C	-	280 - 320
Mold Temperatures		°C	-	80 - 120
Dry Air Drying Temperature		°C	-	120
Dry Air Drying Time		h	-	4
Moisture Content max. (%)		%	-	0.02

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

Disclaimer for Developmental products

This is a trial product. Further information, including amended or supplementary data on hazards associated with its use, may be compiled in the future. For this reason no assurances are given as to type conformity, processability, long-term performance characteristics or other production or application parameters. Therefore, the purchaser/user uses the product entirely at his own risk without having been given any warranty or guarantee and agrees that the supplier shall not be liable for any damage, of whatever nature, arising out of such use. Commercialisation and continued supply of this material are not assured. Its supply may be discontinued at any time.

Typical value

These values are typical values only. Unless explicitly agreed in written form, the 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.

General

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance, information and recommendations to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Covestro. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent. With respect to health, safety and environment precautions, the relevant Material Safety Data Sheets (MSDS) and product labels must be observed prior to working with our products.

Non Medical and non Food Contact Grade

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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