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Grades for / Medical devices	Global grade; MVR (300 °C/1.2 kg) 9.5 cm³/10 min; Medical devices; suitable for ETO and steam sterilization at 121 °C; Complies with the requirements of FDA-modified ISO 10993-1 and USP Class VI; Medium viscosity; Easy release; Good hydrolysis resistance; Injection molding - Melt temperature 280 - 320 °C; Available in transparent and opaque colors
ISO Shortname	ISO 7391-PC,MR,(,,)-09-9

	Property	Test Condition	Unit	Standard	Value
Rheological properties					
C	Melt volume-flow rate	300 °C; 1.2 kg	cm³/10 min	ISO 1133	9.5
C	Molding shrinkage, parallel	60x60x2; 500 bar	%	ISO 294-4	0.65
C	Molding shrinkage, normal	60x60x2; 500 bar	%	ISO 294-4	0.7
	Molding shrinkage, parallel/normal	Value range based on general practical experience	%	b.o. ISO 2577	0.6 - 0.8
	Melt mass-flow rate	300 °C; 1.2 kg	g/10 min	ISO 1133	10
Mechanical properties (23 °C/50 % r. h.)					
C	Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2400
C	Yield stress	50 mm/min	MPa	ISO 527-1,-2	66
C	Yield strain	50 mm/min	%	ISO 527-1,-2	6.1
C	Nominal strain at break	50 mm/min	%	ISO 527-1,-2	> 50
	Stress at break	50 mm/min	MPa	ISO 527-1,-2	70
	Strain at break	50 mm/min	%	b.o. ISO 527-1,-2	120
C	Tensile creep modulus	1 h	MPa	ISO 899-1	2200
C	Tensile creep modulus	1000 h	MPa	ISO 899-1	1900
	Flexural modulus	2 mm/min	MPa	ISO 178	2400
	Flexural strength	2 mm/min	MPa	ISO 178	97
	Flexural strain at flexural strength	2 mm/min	%	ISO 178	7.1
	Flexural stress at 3.5 % strain	2 mm/min	MPa	ISO 178	73
C	Charpy impact strength	23 °C	kJ/m²	ISO 179-1eU	N
C	Charpy impact strength	-30 °C	kJ/m²	ISO 179-1eU	N
	Charpy impact strength	-60 °C	kJ/m²	ISO 179-1eU	N
	Charpy notched impact strength	23 °C; 3 mm	kJ/m²	ISO 7391/b.o. ISO 179-1eA	75P
	Charpy notched impact strength	-30 °C; 3 mm	kJ/m²	ISO 7391/b.o. ISO 179-1eA	16C
	Izod notched impact strength	23 °C; 3.2 mm	kJ/m²	b.o. ISO 180-A	85P
	Izod notched impact strength	-30 °C; 3.2 mm	kJ/m²	b.o. ISO 180-A	14C
C	Puncture maximum force	23 °C	N	ISO 6603-2	5400
C	Puncture maximum force	-30 °C	N	ISO 6603-2	6300
C	Puncture energy	23 °C	J	ISO 6603-2	60
C	Puncture energy	-30 °C	J	ISO 6603-2	65
	Ball indentation hardness		N/mm²	ISO 2039-1	115

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	Property	Test Condition	Unit	Standard	Value
Thermal properties					
C	Glass transition temperature	10 °C/min	°C	ISO 11357-1,-2	145
C	Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	125
C	Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	137
C	Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	145
	Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	146
C	Coefficient of linear thermal expansion, parallel	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.65
C	Coefficient of linear thermal expansion, transverse	23 to 55 °C	10^{-4}/K	ISO 11359-1,-2	0.65
	Thermal conductivity	23 °C	W/(m·K)	ISO 8302	0.20
	Resistance to heat (ball pressure test)		°C	IEC 60695-10-2	136
	Glow wire test (GWFI)	1.0 mm	°C	IEC 60695-2-12	850
	Glow wire test (GWFI)	1.5 mm	°C	IEC 60695-2-12	850
	Glow wire test (GWFI)	2.0 mm	°C	IEC 60695-2-12	850
	Glow wire test (GWFI)	3.0 mm	°C	IEC 60695-2-12	930
	Glow wire test (GWFI)	4.0 mm	°C	IEC 60695-2-12	960
	Glow wire test (GWIT)	1.0 mm	°C	IEC 60695-2-13	875
	Glow wire test (GWIT)	1.5 mm	°C	IEC 60695-2-13	875
	Glow wire test (GWIT)	2.0 mm	°C	IEC 60695-2-13	875
	Glow wire test (GWIT)	3.0 mm	°C	IEC 60695-2-13	875
	Glow wire test (GWIT)	4.0 mm	°C	IEC 60695-2-13	875
	Flash ignition temperature		°C	ASTM D1929	480
	Self ignition temperature		°C	ASTM D1929	550
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/m³	ISO 1183	1200
	Bulk density	Pellets	kg/m³	ISO 60	660
Material specific properties					
	Refractive index	Procedure A	-	ISO 489	1.586
	Haze for transparent materials	3 mm	%	ISO 14782	< 0.8
	Luminous transmittance (clear transparent materials)	1 mm	%	ISO 13468-2	89
C	Luminous transmittance (clear transparent materials)	2 mm	%	ISO 13468-2	89
	Luminous transmittance (clear transparent materials)	3 mm	%	ISO 13468-2	88
	Luminous transmittance (clear transparent materials)	4 mm	%	ISO 13468-2	87
Processing conditions for test specimens					
C	Injection molding-Melt temperature		°C	ISO 294	300
C	Injection molding-Mold temperature		°C	ISO 294	80
C	Injection molding-Injection velocity		mm/s	ISO 294	200

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 Sales products

This information and our technical advice - whether verbal, in writing or by way of trials - are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.

Test values

Unless specified to the contrary, the values given have been established on standardized test specimens at room temperature. The figures should be regarded as guide values only and not as binding minimum values. Please note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mold/die, the processing conditions and coloring.

Medical products

**Only Bayer plastics which fulfil the test requirements of ISO 10 993-1 may be used for medical articles which come within the scope of this standard. However, the biocompatibility tests which we perform according to this standard do not cover the following ranges of application for medical articles manufactured from our material: long-term use over 30 days, particularly use as (cosmetic or reconstructive) implant; long-term contact over 30 days with endogenous substances (blood, tissue, dentin, other body fluids); multiple use for medical applications. Therefore Bayer plastics should not be used for long-term applications or with long-term contact. Use of recycled materials or the use of other additional material components in the finished product: Our test results for biocompatibility do not apply to the use of recycled materials or the use of other additional material components in the finished product. Responsibility of the manufacturer of the medical article: The use of our material outside the above-mentioned test scope of ISO 10 993-1 occurs exclusively on the responsibility of the processor of our material and the manufacturer of the finished product. As regards the production conditions of the processor of our material which are not known to us, it is the responsibility of the processor to ascertain the suitability of our materials in the finished product in terms of directives and statutes to be observed. The suitability of our materials also depends on the ambient conditions (see below) for the finished product. Chemical compatibility, temperature, design of the medical article, method of sterilization, internal stress within the finished article, and external stress all influence suitability, and are therefore the responsibility of the processor and the manufacturer of the finished product. Multiple-use of medical articles: Medical articles which are intended for single use and which were manufactured from Bayer plastic are not suitable for multiple use. If the medical article was manufactured for multiple use, it is the responsibility of the manufacturer of the finished product to determine an appropriate number of times it may be used, by determining and evaluating the conditions of sterilization and final use. Appropriate warnings and instructions must be given to the end user. Sterilization: The use of various methods of sterilization and the permitted number of sterilization cycles for a medical article which is made from our materials depend on the design of the parts, the processing parameters, the sterilization temperature and the chemical environment. Therefore the manufacturer must determine and evaluate the most suitable method of sterilization (and if applicable the permitted number of sterilization cycles) for each medical article. Appropriate instructions and warnings must be given to the end user.

Processing note

Under the recommended processing conditions small quantities of decomposition product may be given off during processing.To preclude any risk to the health and well-being of the machine operatives, tolerance limits for the work environment must be ensured by the provision of efficient exhaust ventilation and fresh air at the workplace in accordance with the Safety Data Sheet. In order to prevent the partial decomposition of the polymer and the generation of volatile decomposition products, the prescribed processing temperatures should not be substantially exceeded.

Publisher: Global Innovations - Polycarbonates

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