Apec® 1745

Standard grades / Medical applications, suitable for superheated steam sterilization

MVR (330°C/2.16kg) 17 cm³/10 min; easy release; suitable for superheated steam sterilisation up to 143 °C as well as for pharmaceutical applications according to United States Pharmacopeia (USP) XXII Class VI; softening temperature (VST/B 120)=170 °C; injection molding - melt temperature 320 - 340°C; Films for medical packaging; Contact lens holders; Medical vessels; Safety valve for respiration aids; Syringe tops

ISO Shortname

	Property	Test Condition	Unit	Standard	typical Value
Rheological properties					
C	Melt volume-flow rate	330 °C; 2.16 kg	cm³/10 min	ISO 1133	17
	Melt mass-flow rate	330 °C; 2.16 kg	g/10 min	ISO 1133	17
C	Molding shrinkage, parallel	60x60x2 mm	%	ISO 294-4	0.8
C	Molding shrinkage, normal	60x60x2 mm	%	ISO 294-4	0.8
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	70
C	Yield strain	50 mm/min	%	ISO 527-1,-2	6.8
C	Nominal strain at break	50 mm/min	%	ISO 527-1,-2	> 50
C	Charpy impact strength	23 °C	kJ/m²	ISO 179-1eU	N
C	Charpy impact strength	-30 °C	kJ/m²	ISO 179-1eU	N
	Flexural modulus	2 mm/min	MPa	ISO 178	2400
	Flexural strength	2 mm/min	MPa	ISO 178	105
	Ball indentation hardness		N/mm²	ISO 2039-1	120
Thermal properties					
C	Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	148
C	Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	160
	Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	170
	Relative temperature index (Tensile strength)		°C	UL 746B	140
	Relative temperature index (Tensile impact strength)		°C	UL 746B	130
	Relative temperature index (Electric strength)		°C	UL 746B	140
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
C	Burning behavior UL 94 (1.5 mm) [UL recognition]	1.5 mm	Class	UL 94	HB
C	Oxygen index	Method A	%	ISO 4589-2	25
	Glow wire test (GWFI)		°C	IEC 60695-2-12	850
Electrical properties (23 °C/50 % r. h.)					
C	Relative permittivity	100 Hz	-	IEC 60250	3
C	Relative permittivity	1 MHz	-	IEC 60250	2,9
C	Dissipation factor	100 Hz	10^{-4}	IEC 60250	10
C	Dissipation factor	1 MHz	10^{-4}	IEC 60250	80
C	Volume resistivity		Ohm·m	IEC 60093	1E15
C	Surface resistivity		Ohm	IEC 60093	1E16
C	Electrical strength	1 mm	kV/mm	IEC 60243-1	35
C	Comparative tracking index CTI	Solution A	Rating	IEC 60112	250
	Comparative tracking index CTI M	Solution B	Rating	IEC 60112	125
	Electrolytic corrosion		Rating	IEC 60426	A1
Other properties (23 °C)					
C	Water absorption (saturation value)	Water at 23 °C	%	ISO 62	0.3
C	Water absorption (equilibrium value)	23 °C; 50 % r. h.	%	ISO 62	0.12
C	Density		kg/m³	ISO 1183-1	1170

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	Property	Test Condition	Unit	Standard	typical Value
Material specific properties					
	Refractive index	Procedure A	-	ISO 489	1.578
	Luminous transmittance (clear transparent materials)	1 mm	%	ISO 13468-2	88
Processing conditions for test specimens					
C	Injection molding-Melt temperature		°C	ISO 294	330
C	Injection molding-Mold temperature		°C	ISO 294	100
C	Injection molding-Injection velocity		mm/s	ISO 294	200
Recommended Processing and Drying Conditions					
	Melt Temperatures		°C	-	320 - 340
	Standard Melt Temperature		°C	-	330
	Barrel Temperatures - Rear		°C	-	310 - 320
	Barrel Temperatures - Middle		°C	-	315 - 325
	Barrel Temperatures - Front		°C	-	315 - 330
	Barrel Temperatures - Nozzle		°C	-	310 - 335
	Mold Temperatures		°C	-	90 - 130
	Hold Pressure (% of injection pressure)		%	-	50 - 75
	Plastic Back Pressure (specific)		bar	-	100 - 200
	Peripheral Screw Speed		m/s	-	0.05 - 0.2
	Shot-to-Cylinder Size		%	-	30 - 70
	Dry Air Drying Temperature		°C	-	130
	Dry Air Drying Time		h	-	2.0 - 4.0
	Moisture Content max. (%)		%	-	<= 0,02
	Vent Depth		mm	-	0.025 - 0.05

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, 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.

Global Disclaimer PCS

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Covestro Medical Grades

For more information on Covestro products in Medical Applications, please request from your sales support contact our Guidance document: GUIDANCE ON USE OF COVESTRO PRODUCTS IN A MEDICAL APPLICATION.

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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