

科思创 PC Makrolon® 2805物性表

Thermal properties				
属性名称	测试标准	测试标准	单位	数值
Application of flame from small burner	DIN 53438-1,-3	Method K and F/ 2.0 mm	Class	K1, F1
Burning behavior UL 94 [UL recognition]	UL 94	2.5 mm	Class	HB
Burning behavior UL 94 [UL recognition]	UL 94	0.75 mm	Class	V-2
Burning rate (US-FMVSS)	ISO 3795	>=1.0 mm	mm/min	passed
Coefficient of linear thermal expansion, normal	ISO 11359-1,-2	23 to 55 °C	10 ⁻⁴ /K	0.65
Coefficient of linear thermal expansion, parallel	ISO 11359-1,-2	23 to 55 °C	10 ⁻⁴ /K	0.65
Flash ignition temperature	ASTM D1929		°C	480
Glass transition temperature	ISO 11357-1,-2	10 °C/min	°C	145
Glow wire test	b.o. EDF HN60 E.02	1.5 mm	°C	750
Glow wire test	b.o. EDF HN60 E.02	3.0 mm	°C	750
Glow wire test (GWFI)	IEC 60695-2-12	0.75 mm	°C	850
Glow wire test (GWFI)	IEC 60695-2-12	1.5 mm	°C	850
Glow wire test (GWFI)	IEC 60695-2-12	3.0 mm	°C	930
Glow wire test (GWIT)	IEC 60695-2-13	0.75 mm	°C	875
Glow wire test (GWIT)	IEC 60695-2-13	1.0 mm	°C	875
Glow wire test (GWIT)	IEC 60695-2-13	1.5 mm	°C	875
Glow wire test (GWIT)	IEC 60695-2-13	3.0 mm	°C	900
Needle flame test	IEC 60695-11-5	Method F/ 1.5 mm	s	60
Needle flame test	IEC 60695-11-5	Method F/ 2.0 mm	s	60
Needle flame test	IEC 60695-11-5	Method F/ 3.0 mm	s	120
Needle flame test	IEC 60695-11-5	Method K/ 3.0 mm	s	10
Needle flame test	IEC 60695-11-5	Method K/ 1.5 mm	s	5
Needle flame test	IEC 60695-11-5	Method K/ 2.0 mm	s	5
Oxygen index	ISO 4589-2	Method A	%	28

Relative temperature index (Electric strength) [UL recognition]	UL 746B	1.5 mm	°C	125
Relative temperature index (Tensile impact strength) [UL recognition]	UL 746B	1.5 mm	°C	115
Relative temperature index (Tensile strength) [UL recognition]	UL 746B	1.5 mm	°C	125
Resistance to heat (ball pressure test)	IEC 60695-10-2		°C	136
Self ignition temperature	ASTM D1929		°C	550
Temperature of deflection under load	ISO 75-1,-2	0.45 MPa	°C	137
Temperature of deflection under load	ISO 75-1,-2	1.80 MPa	°C	125
Thermal conductivity, through-plane	ISO 8302	23 °C; 50 % r. h.	W/(m*K)	0.2
Vicat softening temperature	ISO 306	50 N; 120 °C/h	°C	146
Vicat softening temperature	ISO 306	50 N; 50 °C/h	°C	144

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

属性名称	测试标准	测试标准	单位	数值
Ball indentation hardness	ISO 2039-1		N/mm ²	115
Charpy impact strength	ISO 179/1eU	-60 °C	kJ/m ²	N
Charpy impact strength	ISO 179/1eU	23 °C	kJ/m ²	N
Charpy notched impact strength	ISO 21305/based on ISO 179/1eA	-30 °C/ 3 mm	kJ/m ²	16C
Charpy notched impact strength	ISO 21305/based on ISO 179/1eA	23 °C/ 3 mm	kJ/m ²	75P
Flexural modulus	ISO 178	2 mm/min	MPa	2400
Flexural strain at flexural strength	ISO 178	2 mm/min	%	7.1
Flexural strength	ISO 178	2 mm/min	MPa	97
Flexural stress at 3.5 % strain	ISO 178	2 mm/min	MPa	73
Izod notched impact strength	ISO 21305/based on ISO 180/A	23 °C/ 3 mm	kJ/m ²	70P
Izod notched impact strength	ISO 21305/based on ISO 180/A	-30 °C/ 3 mm	kJ/m ²	15C
Nominal strain at break	ISO 527-1,-2	50 mm/min	%	> 50
Puncture energy	ISO 6603-2	-30 °C	J	65
Puncture energy	ISO 6603-2	23 °C	J	60

Puncture impact properties - maximum force	ISO 6603-2	-30 °C	N	6300
Puncture impact properties - maximum force	ISO 6603-2	23 °C	N	5400
Strain at break	b.o. ISO 527-1,-2	50 mm/min	%	130
Stress at break	ISO 527-1,-2	50 mm/min	MPa	70
Tensile creep modulus	ISO 899-1	1 h	MPa	2200
Tensile creep modulus	ISO 899-1	1000 h	MPa	1900
Tensile modulus	ISO 527-1,-2	1 mm/min	MPa	2400
Yield strain	ISO 527-1,-2	50 mm/min	%	6.2
Yield stress	ISO 527-1,-2	50 mm/min	MPa	66

Material specific properties

属性名称	测试标准	测试标准	单位	数值
Haze for transparent materials	ISO 14782	3 mm	%	< 0.8
Luminous transmittance (clear transparent materials)	ISO 13468-2	1 mm	%	89
Luminous transmittance (clear transparent materials)	ISO 13468-2	2 mm	%	89
Luminous transmittance (clear transparent materials)	ISO 13468-2	4 mm	%	87
Luminous transmittance (clear transparent materials)	ISO 13468-2	3 mm	%	88
Refractive index	ISO 489	Procedure A		1.586

Rheological properties

属性名称	测试标准	测试标准	单位	数值
Melt mass-flow rate	ISO 1133	300 °C/ 1.2 kg	g/10 min	10
Melt volume-flow rate	ISO 1133	300 °C/ 1.2 kg	cm ³ /10 min	9
Molding shrinkage, normal	ISO 294-4	60x60x2 mm/ 500 bar	%	0.7
Molding shrinkage, parallel	ISO 294-4	60x60x2 mm/ 500 bar	%	0.65
Molding shrinkage, parallel/normal	b.o. ISO 2577	Value range based on general practical experience	%	0.6 - 0.8

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

属性名称	测试标准	测试标准	单位	数值
Comparative tracking index CTI	IEC 60112	Solution A	Rating	250

Comparative tracking index CTI M	IEC 60112	Solution B	Rating	125M
Dissipation factor	IEC 60250	1 MHz	10 ⁻⁴	90
Dissipation factor	IEC 60250	100 Hz	10 ⁻⁴	5
Electrical strength	IEC 60243-1	1 mm	kV/mm	34
Electrolytic corrosion	IEC 60426		Rating	A1
Relative permittivity	IEC 60250	1 MHz		3.0
Relative permittivity	IEC 60250	100 Hz		3.1
Surface resistivity	IEC 60093		Ohm	1E16
Volume resistivity	IEC 60093		Ohm*m	1E14

Processing conditions for test specimens

属性名称	测试标准	测试标准	单位	数值
Injection molding - Injection velocity	ISO 294		mm/s	200
Injection molding - Melt temperature	ISO 294		°C	300
Injection molding - Mold temperature	ISO 294		°C	80

Other properties (23 °C)

属性名称	测试标准	测试标准	单位	数值
Bulk density	ISO 60	Pellets	kg/m ³	660
Density	ISO 1183-1		kg/m ³	1200
Gas permeation	b.o. ISO 2556	Carbon dioxide/ 25.4 µm (1 mil) film	cm ³ /(m ² *24 h*bar)	16900
Gas permeation	b.o. ISO 2556	Nitrogen/ 100 µm film	cm ³ /(m ² *24 h*bar)	120
Gas permeation	b.o. ISO 2556	Carbon dioxide/ 100 µm film	cm ³ /(m ² *24 h*bar)	3800
Gas permeation	b.o. ISO 2556	Oxygen/ 100 µm film	cm ³ /(m ² *24 h*bar)	650
Gas permeation	b.o. ISO 2556	Nitrogen/ 25.4 µm (1 mil) film	cm ³ /(m ² *24 h*bar)	510
Gas permeation	b.o. ISO 2556	Oxygen/ 25.4 µm (1 mil) film	cm ³ /(m ² *24 h*bar)	2760
Water absorption (equilibrium value)	ISO 62	23 °C; 50 % r. h.	%	0.12
Water absorption (saturation value)	ISO 62	Water at 23 °C	%	0.3
Water vapor permeability	ISO 15106-1	23 °C; 85 % RH/ 100 µm film	g/(m ² *24 h)	15

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