



恆祥龍®工程塑膠 物性表

Technical Properties of HiShiRon® Engineering Plastics

性質	Characteristic	方法 Method of verification	單位 Unit	PES PES
I. 物理特性		I. Physical Properties		
比重	Density	ISO 1183	g/cm ³	1.37
吸水率 (飽和)	Water absorption	ISO 62	%	0.70
II. 機械特性		II. Mechanical Properties		
降伏點拉力強度	Tensile strength at yield	ISO 527-2	MPa	90
斷裂拉力強度	Tensile strength at break	ISO 527-2	MPa	6
斷裂伸長率	Elongation at break	ISO 527-2	%	40
彈性模數—拉力試驗後	Modulus of elasticity after tensile test	ISO 527-2	MPa	2,700
彈性模數—彎曲試驗後	Modulus of elasticity after flexural test	ISO 178	MPa	-
硬度—洛氏	Hardness - Rockwell	ISO 2039-2		M89
硬度—薛氏D	Hardness - Shore D	DIN 53505		-
衝擊強度	Charpy impact strength at 23°C	ISO 179	kJ/m ²	N. B.
磨擦係數	Friction coefficient	DIN 53375		-
III. 熱特性		III. Thermal Properties		
熱變形溫度—HDT/A	Heat deflection temperature - HDT/A	ISO 75-2	°C	200
最高使用溫度—短時間	Max. service temperature - Short term		°C	220
最高使用溫度—長期	Max. Service Temperature - Long term		°C	180
熱傳導係數	Thermal conductivity at 23 °C	DIN 11359	W/(K*m)	0.18
線性熱膨脹係數	Coefficient of linear thermal expansion	ISO 11359	10 ⁻⁴ * K ⁻¹	0.55
IV. 電氣特性		IV. Electrical Properties		
介電常數	Dielectric constant at 1 MHz	IEC 60250	10 ⁶ Hz	3.50
介電損失係數	Dielectric loss factor at 1 MHz	IEC 60250	10 ⁶ Hz	0.005
體積阻抗	Volume resistivity	IEC 60093	Ohm (Ω) * cm	> 10 ¹⁶
表面阻抗	Surface resistivity	IEC 60093	Ohm (Ω)	> 10 ¹⁴
介電強度	Dielectric strength	IEC 60243-1	kV/mm	40
V. 其他參考數據		V. Miscellaneous Data		
燃燒能力	Flammability	UL 94	Class	V-0

NOTE: 1 g/cm³ = 1,000 kg/m³, 1 Mpa = 1 N/mm², 1kV/mm = 1 MV/m

聲明 / Statement :

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I. 物理特性		I. Physical Properties		
比重	Density	ISO 1183	g/cm ³	1.27
吸水率 (飽和)	Water absorption	ISO 62	%	0.70
II. 機械特性		II. Mechanical Properties		
降伏點拉力強度	Tensile strength at yield	ISO 527-2	MPa	105
斷裂拉力強度	Tensile strength at break	ISO 527-2	MPa	85
斷裂伸長率	Elongation at break	ISO 527-2	%	60
彈性模數—拉力試驗後	Modulus of elasticity after tensile test	ISO 527-2	MPa	3,200
彈性模數—彎曲試驗後	Modulus of elasticity after flexural test	ISO 178	MPa	3,300
硬度—洛氏	Hardness - Rockwell	ISO 2039-2		-
硬度—薛氏D	Hardness - Shore D	DIN 53505		82
衝擊強度	Charpy impact strength at 23°C	ISO 179	kJ/m ²	4
磨擦係數	Friction coefficient	DIN 53375		-
III. 熱特性		III. Thermal Properties		
熱變形溫度—HDT/A	Heat deflection temperature - HDT/A	ISO 75-2	°C	190
最高使用溫度—短時間	Max. service temperature - Short term		°C	200
最高使用溫度—長期	Max. Service Temperature - Long term		°C	170
熱傳導係數	Thermal conductivity at 23 °C	DIN 11359	W/(K*m)	0.24
線性熱膨脹係數	Coefficient of linear thermal expansion	ISO 11359	10 ⁻⁴ * K ⁻¹	0.56
IV. 電氣特性		IV. Electrical Properties		
介電常數	Dielectric constant at 1 MHz	IEC 60250	10 ⁶ Hz	2.90
介電損失係數	Dielectric loss factor at 1 MHz	IEC 60250	10 ⁶ Hz	0.0013
體積阻抗	Volume resistivity	IEC 60093	Ohm (Ω) * cm	≥ 10 ¹³
表面阻抗	Surface resistivity	IEC 60093	Ohm (Ω)	≥ 10 ¹⁵
介電強度	Dielectric strength	IEC 60243-1	kV/mm	33
V. 其他參考數據		V. Miscellaneous Data		
燃燒能力	Flammability	UL 94	Class	V-0

NOTE: 1 g/cm³ = 1,000 kg/m³, 1 Mpa = 1 N/mm², 1kV/mm = 1 MV/m

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性質	Characteristic	方法 Method of verification	單位 Unit	PSU PSU
I. 物理特性		I. Physical Properties		
比重	Density	ISO 1183	g/cm ³	1.24
吸水率 (飽和)	Water absorption	ISO 62	%	0.20
II. 機械特性		II. Mechanical Properties		
降伏點拉力強度	Tensile strength at yield	ISO 527-2	MPa	70
斷裂拉力強度	Tensile strength at break	ISO 527-2	MPa	6
斷裂伸長率	Elongation at break	ISO 527-2	%	≥ 50
彈性模數—拉力試驗後	Modulus of elasticity after tensile test	ISO 527-2	MPa	2,600
彈性模數—彎曲試驗後	Modulus of elasticity after flexural test	ISO 178	MPa	-
硬度—洛氏	Hardness - Rockwell	ISO 2039-2		-
硬度—薛氏D	Hardness - Shore D	DIN 53505		86
衝擊強度	Charpy impact strength at 23°C	ISO 179	kJ/m ²	N. B.
磨擦係數	Friction coefficient	DIN 53375		0.40
III. 熱特性		III. Thermal Properties		
熱變形溫度—HDT/A	Heat deflection temperature - HDT/A	ISO 75-2	°C	174
最高使用溫度—短時間	Max. service temperature - Short term		°C	180
最高使用溫度—長期	Max. Service Temperature - Long term		°C	160
熱傳導係數	Thermal conductivity at 23 °C	DIN 11359	W/(K*m)	0.25
線性熱膨脹係數	Coefficient of linear thermal expansion	ISO 11359	10 ⁻⁴ * K ⁻¹	0.56
IV. 電氣特性		IV. Electrical Properties		
介電常數	Dielectric constant at 1 MHz	IEC 60250	10 ⁶ Hz	3.00
介電損失係數	Dielectric loss factor at 1 MHz	IEC 60250	10 ⁶ Hz	0.006
體積阻抗	Volume resistivity	IEC 60093	Ohm (Ω) * cm	≥ 10 ¹³
表面阻抗	Surface resistivity	IEC 60093	Ohm (Ω)	≥ 10 ¹⁴
介電強度	Dielectric strength	IEC 60243-1	kV/mm	17
V. 其他參考數據		V. Miscellaneous Data		
燃燒能力	Flammability	UL 94	Class	V-0

NOTE: 1 g/cm³ = 1,000 kg/m³, 1 Mpa = 1 N/mm², 1kV/mm = 1 MV/m

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