# Westlake PES

### Polyethersulfone

#### Westlake Plastics Company

#### Message:

High resistance to heat and combustibility, low smoke emission, and transparency are the combination of properties possessed by stock shapes extruded from PES. These, coupled with light weight, good impact resistance, dimensional stability, and chemical resistance, make stock shapes extruded from PES resin useful in the electrical/electronics, aerospace/aircraft, automotive, and mass transit industries. PES stock shapes are also applicable for heat and fire safety, food service, and hospital and health care items.

Applications Include: Printed circuits High intensity light bases Safety face shields Machine guards Connectors Advantages of PES: Low smoke generation Excellent electrical properties at elevated temperatures Transparency Excellent chemical resistance Easily machined

General Information	
Features	Combustion Resistant
	Food Contact Acceptable
	Good Chemical Resistance
	Good Dimensional Stability
	Good Electrical Properties
	Good Impact Resistance
	High Heat Resistance
	Low Smoke Emission
	Machinable
Uses	Aerospace Applications
	Aircraft Applications
	Automotive Applications
	Connectors
	Electrical/Electronic Applications
	Medical/Healthcare Applications
	Non-specific Food Applications
	Printed Circuit Boards
Appearance	Clear/Transparent
	Colors Available
Forms	Film

Rod Sheet

Slab

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.37	g/cm <sup>3</sup>	ASTM D792
Water Absorption (24 hr)	1.9	%	ASTM D570
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	127		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	2650	MPa	ASTM D638
Tensile Strength (Yield)	82.7	MPa	ASTM D638
Tensile Elongation			ASTM D638
Yield	5.5	%	
Break	50 to 100	%	
Flexural Modulus	2900	MPa	ASTM D790
Flexural Strength (Yield)	111	MPa	ASTM D790
Compressive Modulus	2680	MPa	ASTM D695
Compressive Strength	100	MPa	ASTM D695
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (23°C)	85	J/m	ASTM D256
Unnotched Izod Impact	No Break		ASTM D256
Unnotched Izod Impact Thermal	No Break Nominal Value	Unit	Test Method
Unnotched Izod Impact Thermal Deflection Temperature Under Load	No Break Nominal Value	Unit	ASTM D256 Test Method ASTM D648
Unnotched Izod Impact Thermal Deflection Temperature Under Load 0.45 MPa, Unannealed	No Break Nominal Value 214	Unit °C	ASTM D256 Test Method ASTM D648
Unnotched Izod Impact Thermal Deflection Temperature Under Load 0.45 MPa, Unannealed 1.8 MPa, Unannealed	No Break Nominal Value 214 204	Unit ℃ ℃	ASTM D256 Test Method ASTM D648
Unnotched Izod Impact Thermal Deflection Temperature Under Load 0.45 MPa, Unannealed 1.8 MPa, Unannealed CLTE - Flow	No Break Nominal Value 214 204 4.9E-5	Unit °C °C cm/cm/°C	ASTM D256 Test Method ASTM D648 ASTM D696
Unnotched Izod Impact         Thermal         Deflection Temperature Under Load         0.45 MPa, Unannealed         1.8 MPa, Unannealed         CLTE - Flow         Thermal Conductivity	No Break           Nominal Value           214           204           4.9E-5           0.16	Unit °C °C cm/cm/°C W/m/K	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177
Unnotched Izod Impact         Thermal         Deflection Temperature Under Load         0.45 MPa, Unannealed         1.8 MPa, Unannealed         CLTE - Flow         Thermal Conductivity         Electrical	No Break Nominal Value 214 204 4.9E-5 0.16 Nominal Value	Unit °C °C cm/cm/°C W/m/K Unit	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177 Test Method
Unnotched Izod Impact Thermal Deflection Temperature Under Load 0.45 MPa, Unannealed 1.8 MPa, Unannealed CLTE - Flow Thermal Conductivity Electrical Volume Resistivity	No Break           Nominal Value           214           204           4.9E-5           0.16           Nominal Value           1.7E+15	Unit °C °C cm/cm/°C W/m/K Unit ohms·cm	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177 Test Method ASTM D257
Unnotched Izod ImpactThermalDeflection Temperature Under Load0.45 MPa, Unannealed1.8 MPa, UnannealedCLTE - FlowThermal ConductivityElectricalVolume ResistivityDielectric Strength	No Break           Nominal Value           214           204           4.9E-5           0.16           Nominal Value           1.7E+15           15	Unit °C °C cm/cm/°C W/m/K Unit ohms·cm kV/mm	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177 Test Method ASTM D257 ASTM D149
Unnotched Izod ImpactThermalDeflection Temperature Under Load0.45 MPa, Unannealed1.8 MPa, UnannealedCLTE - FlowThermal ConductivityElectricalVolume ResistivityDielectric StrengthDielectric Constant (1 kHz)	No Break           Nominal Value           214           204           4.9E-5           0.16           Nominal Value           1.7E+15           15           3.50	Unit  °C  °C  °C  W/m/C  Unit  ohms·cm kV/mm	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177 Test Method ASTM D257 ASTM D149 ASTM D150
Unnotched Izod Impact          Thermal         Deflection Temperature Under Load         0.45 MPa, Unannealed         1.8 MPa, Unannealed         CLTE - Flow         Thermal Conductivity         Electrical         Volume Resistivity         Dielectric Strength         Dielectric Constant (1 kHz)         Dissipation Factor (1 kHz)	No Break         Nominal Value         214         204         4.9E-5         0.16         Nominal Value         1.7E+15         15         3.50         2.2E-3	Unit  °C  °C  cm/cm/°C  W/m/K  Unit ohms·cm kV/mm	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177 Test Method ASTM D257 ASTM D149 ASTM D150 ASTM D150
Unnotched Izod ImpactThermalDeflection Temperature Under Load0.45 MPa, Unannealed1.8 MPa, UnannealedCLTE - FlowThermal ConductivityElectricalVolume ResistivityDielectric StrengthDielectric Constant (1 kHz)Dissipation Factor (1 kHz)Flammability	No Break         Nominal Value         214         204         4.9E-5         0.16         Nominal Value         1.7E+15         15         3.50         2.2E-3         Nominal Value	Unit °C °C cm/cm/°C W/m/K Unit ohms·cm kV/mm Unit	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177 Test Method ASTM D257 ASTM D149 ASTM D150 ASTM D150 Test Method
Unnotched Izod ImpactThermalDeflection Temperature Under Load0.45 MPa, Unannealed1.8 MPa, UnannealedCLTE - FlowThermal ConductivityElectricalVolume ResistivityDielectric StrengthDielectric Constant (1 kHz)Dissipation Factor (1 kHz)FlammabilityFlame Rating (0.787 mm)	No Break         Nominal Value         214         204         4.9E-5         0.16         Nominal Value         1.7E+15         15         3.50         2.2E-3         Nominal Value         V-0	Unit  °C  °C  cm/cm/°C  W/m/K  Unit ohms·cm kV/mm  Unit	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177 Test Method ASTM D257 ASTM D149 ASTM D150 ASTM D150 Test Method UL 94
Unnotched Izod ImpactThermalDeflection Temperature Under Load0.45 MPa, Unannealed1.8 MPa, UnannealedCLTE - FlowThermal ConductivityElectricalVolume ResistivityDielectric StrengthDielectric Constant (1 kHz)Dissipation Factor (1 kHz)FlammabilityFlame Rating (0.787 mm)Oxygen Index	No Break         Nominal Value         214         204         4.9E-5         0.16         Nominal Value         1.7E+15         15         3.50         2.2E-3         Nominal Value         V-0         39	Unit  °C  °C  °C  Cm/cm/°C  W/m/K  Unit  ohms·cm  kV/mm  Unit	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM C177 Test Method ASTM D170 ASTM D150 ASTM D150 Test Method UL 94 ASTM D2863
Unnotched Izod ImpactThermalDeflection Temperature Under Load0.45 MPa, Unannealed1.8 MPa, UnannealedCLTE - FlowThermal ConductivityElectricalVolume ResistivityDielectric StrengthDielectric Constant (1 kHz)Dissipation Factor (1 kHz)FlammabilityFlame Rating (0.787 mm)Oxygen IndexOptical	No Break           Nominal Value           214           204           4.9E-5           0.16           Nominal Value           1.7E+15           15           3.50           2.2E-3           Nominal Value           V-0           39           Nominal Value	Unit  °C  °C  °C  Cm/cm/°C  W/m/K  Unit  Ohms·cm  KV/mm  Unit  Unit  Unit	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM D696 ASTM C177 Test Method ASTM D257 ASTM D149 ASTM D150 ASTM D150 Test Method UL 94 ASTM D2863 Test Method
Unnotched Izod ImpactThermalDeflection Temperature Under Load0.45 MPa, Unannealed1.8 MPa, UnannealedCLTE - FlowThermal ConductivityElectricalVolume ResistivityDielectric StrengthDielectric Constant (1 kHz)Dissipation Factor (1 kHz)FlammabilityFlame Rating (0.787 mm)Oxygen IndexOpticalTransmittance	No Break           Nominal Value           214           204           4.9E-5           0.16           Nominal Value           1.7E+15           15           3.50           2.2E-3           Nominal Value           V-0           39           Nominal Value           76.0	Unit  °C  °C  °C  cm/cm/°C  W/m/K  Unit ohms·cm kV/mm Unit Unit Unit Unit Unit	ASTM D256 Test Method ASTM D648 ASTM D696 ASTM D696 ASTM C177 Test Method ASTM D257 ASTM D150 ASTM D150 ASTM D150 Test Method UL 94 ASTM D2863 Test Method ASTM D1746

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## Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China

