

PREPERM® PPE440

$$\varepsilon_r = 4.4, \tan \delta = 0.0009$$

General purpose

ε_r matches FR4

Applications: Antennas
Antenna parts

PREPERM® PPE440 is a special compound based on Premix proprietary PPE technology. It offers a stable dielectric constant over wide frequency and temperature ranges with low losses. PPE440 is a general purpose grade optimized for injection molding.

Dielectric properties

		Standard	Value	Tolerance
Dielectric constant, ε_r	2.4 GHz	SPDR	4.40	±0.15
Loss tangent, $\tan \delta$	2.4 GHz	SPDR	0.0009	-

Processing parameters

	Unit	Value
Injection moulding		
Material temperature	°C	270 – 310
Mould temperature	°C	80 – 120
Injection pressure		Moderate
Injection speed		Moderate
Extrusion		
Material temperature	°C	260 – 300
Die temperature	°C	260 – 300
Tool/roll temperature	°C	60 – 120

These temperatures can be used for guidance purposes. Processing temperature is also dependent on the equipment used. The instructions of the equipment manufacturer should be followed.

Pre-drying in a dehumidifying drier is recommended e.g. 2 - 4 hours at 100 - 120°C. If a dehumidified drier is not available, we recommend increasing the drying temperature to 110 – 130 °C and prolonging the drying time to 3 to 6 hours. If moisture level is too high, it can be seen in surface quality, but it does not cause polymer degradation.

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Material properties

	Unit	Standard	Value
Physical properties			
Specific gravity	g/cm ³		1.50
Water absorption	%	ISO 62	0.2
Melt Flow Index	g/10 min	ISO 1133 (300 °C / 5.0 kg)	14
Color			White
Thermal Properties			
Deflection Temperature		ISO 75-2:2013	
	0.45 MPa	°C	Method B
	1.8 MPa	°C	Method A
Mold shrinkage	%	ISO 294-4	0.8
Mechanical Properties			
Tensile strength	MPa	ISO 527-2:2012	48
Yield strength	MPa	ISO 527-2:2012	62
Elongation at break	%	ISO 527-2:2012	16
Elongation at yield	%	ISO 527-2:2012	6
Flexural modulus	MPa	ISO 178:2010	2700
Impact strength, unnotched Izod		ISO 180:2000	
	23 °C/73 °F	kJ/m ²	NB
	-20 °C/-4 °F	kJ/m ²	NB
	-78 °C/-108 °F	kJ/m ²	NB
Impact strength, notched Izod		ISO 180:2000	
	23 °C/73 °F	kJ/m ²	20
	-20 °C/-4 °F	kJ/m ²	10
	-78 °C/-108 °F	kJ/m ²	10
Flammability		UL94	
	1.5 mm		-
	3.0 mm		-

PREPERM® is RoHS compliant.

The information in this data sheet represents typical values obtained by us and should not be regarded as a specification.

We condition that the product will be inspected and qualified by the customer for his process to meet the specific requirements set by application, processing equipment and end product.

Packaging

PREPERM® is supplied in granule form, packed in 25 kg polyethylene valve bags (1250 kg) on one-way pallet. The product can be stored up to one year in normal storing conditions.

Contact our sales and R&D teams:

PREMIX OY | Head office
 Tel: +358 9 878 041
 E-mail: precise@premixgroup.com

www.preperm.com