

PRE-ELEC[®] ESD 5500

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PRE-ELEC[®] ESD 5500 is a static dissipative thermoplastic compound based on polypropylene. The dissipative property is permanent and built into the polymer chain. PRE-ELEC[®] ESD 5500 can be injection moulded, extruded, blow moulded and blown into film. Surface resistance values of $10^9 \Omega$ (EOS/ESD S11.11-1993, IEC 61340-5-1) can be achieved with optimum processing parameters. The products made out of PRE-ELEC[®] ESD 5500 are washable, reusable and recyclable. PRE-ELEC[®] ESD 5500 is designed for clean applications with extremely low amount of extractable ions.

Typical applications include bins, trays, bottles and bags where permanent ESD protection and high cleanliness are required. These products can be used mainly in electronics packaging, but in many other application areas as well.

Processing

PRE-ELEC[®] ESD 5500 compound can be processed in normal processing conditions as with polypropylene:

Injection moulding:

Material temperature	190 - 210°C (375 - 410°F)
Mould temperature	30 - 40°C (85 - 105°F)
Injection pressure	600 - 800 bar (8700 - 11600 psi)
Injection speed	moderate

Extrusion temperature:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Die	210°C (410°F)	210°C (410°F)	200 °C (390°F)	210 °C (410°F)	210 °C (410°F)	
Cylinder	180 °C (355°F)	190 °C (375°F)	200 °C (390°F)	210 °C (410°F)	210 °C (410°F)	210 °C (410°F)
Rolls	1st 50°C (120°F)	2nd 40°C (105°F)	3rd 40°C (105°F)			

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 60 - 80°C (140 - 175°F).

Packaging and Storage

PRE-ELEC[®] ESD 5500 is supplied in granule form, packed in 20 kg polyethylene valve bags (1000 kg on one-way pallet) or in 1000 kg octabin.

The product can be stored one year in its original package. Packages should be stored indoors.

Physical Properties

PRE-ELEC [®] ESD 5500	ISO	Unit	ASTM	Unit
Specific gravity		g/cm ³		0.92
Density				lb/in ³ 0.033
Melt Flow Index	1133		D-1238	
230°C / 2.16 kg		g/10min		8
230°C / 5.0 kg		g/10min		-
Tensile strength	527	MPa	D-638	psi 2300
Yield strength	527	MPa	D-638	psi 2900
Elongation at break	527	%	D-638	% 600
Elongation at yield	527	%	D-638	% 15
Tensile modulus	527	MPa	D-638	10 ³ psi 36
Flexural modulus	178	MPa	D-790	10 ³ psi 160
Impact strength, unnotched Izod	180		D-256	
4.0 mm (0.156-in) thickness, 23°C/73°F		kJ/m ²		ft-lb/in ² NB
4.0 mm (0.156-in) thickness, -20°C/-4°F		kJ/m ²		ft-lb/in ² -
Impact strength, notched Izod	180		D-256	
4.0 mm (0.156-in) thickness, 23°C/73°F		kJ/m ²		ft-lb/in ² 6
4.0 mm (0.156-in) thickness, -20°C/-4°F		kJ/m ²		ft-lb/in ² -
Vicat softening point	306/		D-1525	
Rate A	A50	°C		°F 275
Rate B	B50	°C		°F
Deflection temperature	75/		D-648	
0.45 MPa (66 psi) – load	Method Bf	°C		°F 176
1.8 MPa (264 psi) - load	Method Af	°C		°F 122
Surface resistance	IEC 61340-2-3	Ω	ANSI/ES D STM 11.11	Ω 10⁹
Static Decay Rate	IEC 61340-5-1	s	ANSI/ES D S20.20	s <1
Mould shrinkage	294-4	%	D-955	in/in 0.016
Flammability 1 mm	RD524	UL94: HB	RD524	39 mils UL94: HB
3 mm		UL94: HB		118 mils UL94: HB

test specimen: 4.0 mm (0.156 in) thick, 10.0 mm (0.391 in) wide moulded rod

PRE-ELEC[®] 5500 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.

PRE-ELEC[®] is a registered trademark of Premix.