NYTEF PLASTICS

Philadelphia • Chicago • West Palm Beach • Los Angeles • Fachbach, Germany

UNITAL® esd Acetal

UNITAL esd Acetal is an electro-statically dissipative (esd) stock shape thermoplastic that provides excellent strength, toughness, and wear properties.

This material is made electrically active by the addition of an inherently dissipative polymer (IDP) to material's acetal base resin. Unlike the conductive powder and fiber fillers used in many electrically active plastics, UNITAL esd's IDP additive is homogenously dispersed throughout the material's polymer matrix. This uniformity virtually eliminates the wide variations in resistivity ("hot and cold spotting") that are often present in competitive products.

UNITAL esd machines easily with common metal working machinery and is available in extruded heavy section rod, plate, and tubular bar.

APPLICATIONS

- Circuit board test fixtures
- Semiconductor wafer handling devices
- Hard drive assembly fixtures
- Opto-electronic component housings
- ESD sensitive conveyor components (rollers, bearings, slide rails, pallets, product guides, etc.)

UNITAL esd ATTRIBUTES

- 180°F Continuous Use Temp.
- High Strength and Stiffness
- Excellent Toughness
- Superior Wear Resistance
- Low Coefficient of Friction
- Broad Chemical Resistance
- Low Moisture Absorption
- Easily Machined and Fabricated

TYPICAL INDUSTRIES

- Semiconductor Manufacturing
- Electrical and Electronics
- Hard Drive Manufacturing
- Radio Frequency Communications
- Telecommunications

Nytef Plastics, Ltd. is dedicated to supplying our customers with the highest quality thermoplastic stock shapes for machining. We manufacture and stock a full line of thermoplastic materials in a wide variety of rod, plate and tubular bar sizes. In addition, we offer over 30 years of experience in the custom extrusion of application-specific and proprietary resins to meet even the most demanding performance requirements. Nytef Plastics offers full technical support for all products and is certified to ISO 9002 standards for the manufacture of extruded plastics stock shapes.

UNITAL® esd Acetal

Property	Test Method	Units	UNITAL esd Electro-static Dissipative Acetal
Mechanical			
Tensile Strength	ASTM D638	psi (MPa)	6,400 (44)
Tensile Elongation	ASTM D638	%	15
Tensile Modulus of Elasticity	ASTM D638	psi (MPa)	220,000 (1517)
Flexural Strength	ASTM D790	psi (MPa)	8,200 (57)
Flexural Modulus of Elasticity	ASTM D790	psi (MPa)	215,000 (1482)
Compressive Strength	ASTM D695	psi (MPa)	9,000 (62)
Izod Impact (notched)	ASTM D256	ft.- lb./in. (J/m)	1.5 (80)
Rockwell Hardness	ASTM D785	M/R scale	M51/R110
Thermal			
Coefficient of Linear Thermal Exp.	ASTM D696	in./in./°F (m/m/°C)	6.5×10^{-5} (11.7×10^{-5})
Continuous Use Temperature	UL 746	°F (°C)	180 (82)
Heat Deflection Temp. @ 264 psi	ASTM D648	°F (°C)	215 (102)
Melting Point	ASTM-D3418	°F (°C)	324 (162)
Electrical			
Surface Resistivity	EOS.ESD 11.11	ohms/sq.	10^9 - 10^{11}
Volume Resistivity	ESD-STM 11.12	ohm-cm	10^9 - 10^{11}
Static Decay	FTMS-101C, 4046	seconds	< 2.0
Miscellaneous			
Specific Gravity	ASTM D792	---	1.33
Coefficient of Friction - Dynamic	2.0 ksi-fpm		0.19
Coefficient of Friction - Static	40 psi		0.21
Water Absorption/24 hours	ASTM D570	% weight	2.0
Flammability	UL 94		HB
Color			Beige

® Unital is a registered trademark of Nytef Plastics, Ltd.

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