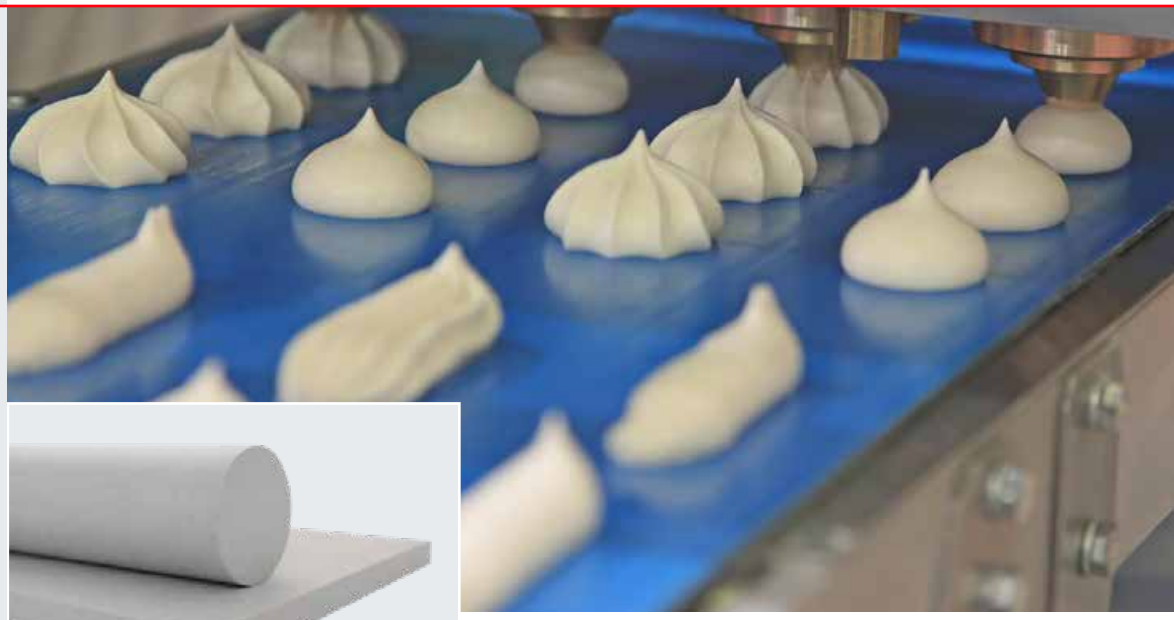
Ertalyte® TX PET



Costumer benefits

- Outstanding wear resistance
- Non-staining
- Excellent dimensional stability
- FDA and EU Food Compliant
- High Limiting PV
- Low and constant coefficient of friction (low slip stick)
- Low water absorption
- Works in wet & dry environments

Applications

- Rollers and wheels without bearings
- Linear bearings
- Wear and slide pads
- Dynamic seals
- Scraper blades
- Thrust washers
- Valve seats
- Journal bearings
- Dosing piston / valve

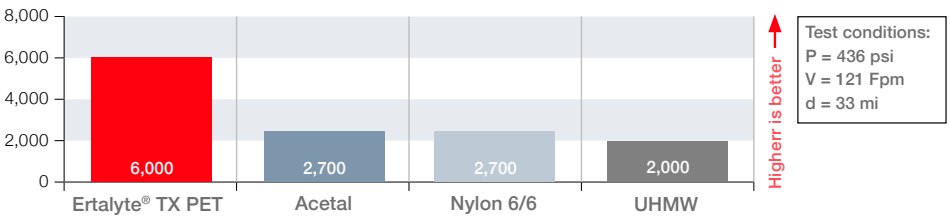
FDA compliant PET outwears nylon, acetal & other polyester materials

Ertalyte® TX PET is an internally lubricated thermoplastic polyester providing enhanced wear and inertness over general purpose nylon (PA) and acetal (POM) products. Containing uniformly dispersed solid lubricant, Ertalyte® TX PET provides a lower wear rate and coefficient of friction than unmodified polyesters like PET or PBT and even internally lubricated materials like Delrin® AF Blend. Ertalyte® TX PET excels under both high pressure and high velocity conditions. It is also ideally suited for applications involving soft metal and plastic mating surfaces.

Ertalyte® TX PET excels in Dosing Systems where food compliancy, chemical resistance and low wear are critical. Replacing metal parts with thermoplastic polyester products from the Mitsubishi Chemical Group (MCG) Advanced Materials Division also reduces maintenance costs and eliminates the need for lubrication.

Materials comparison

Practical limiting PV (per MCG Advanced Materials TM 55007)



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Ertalyte® TX PET

		ISO*			ASTM*		
		Test methods	Units	Indicative values	Test methods	Units	Indicative values
Thermal Properties (1)	Melting temperature (DSC, 10°C (50°F) / min)	ISO 11357-1/-3	°C	245	ASTM D3418	°F	491
	Glass transition temperature (DMA, tan delta)	DMA	°C	-	DMA	°F	-
	Thermal conductivity at 23°C (73°F)	-	W/(K.m)	0.29	-	BTU in./(hr.ft².°F)	1.9
	Coefficient of linear thermal expansion (-40 to 150 °C) (-40 to 300°F)				ASTM E-831 (TMA)	µin./in./°F	45
	Coefficient of linear thermal expansion (23 to 60°C) (73°F to 140°F)	-	µm/(m.K)	65			
	Coefficient of linear thermal expansion (23 to 100°C) (73°F to 210°F)	-	µm/(m.K)	85			
	Heat Deflection Temperature: method A: 1.8 MPa (264 PSI)	ISO 75-1/-2	°C	75	ASTM D648	°F	180
	Continuous allowable service temperature in air (20.000 hrs) (3)	-	°C	100	-	°F	210
	Min. service temperature (4)	-	°C	-20	-	°F	-
	Flammability: UL 94 (3 mm (1/8 in.)) (5)	-	-	HB	-	-	HB
	Flammability: Oxygen Index	ISO 4589-1/-2	%	25			
Mechanical Properties (6)	Tensile strength	ISO 527-1/-2 (7)	MPa	76	ASTM D638 (8)	PSI	10,500
	Tensile strain (elongation) at yield	ISO 527-1/-2 (7)	%	4.00	ASTM D638 (8)	%	4.00
	Tensile strain (elongation) at break	ISO 527-1/-2 (7)	%	5	ASTM D638 (8)	%	7
	Tensile modulus of elasticity	ISO 527-1/-2 (9)	MPa	3,300	ASTM D638 (8)	KSI	500
	Shear Strength	ASTM D732	MPa	59	ASTM D732	PSI	8,500
	Compressive stress at 1 / 2 / 5 % nominal strain	ISO 604 (10)	MPa	31 / 60 / 102			
	Compressive strength				ASTM D695 (11)	PSI	15,250
	Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m²	30.0			
	Charpy impact strength - notched	ISO 179-1/1eA	kJ/m²	2.5			
	Izod Impact notched				ASTM D256	ft.lb./in	0.40
	Flexural strength	ISO 178 (12)	MPa	122	ASTM D790 (13)	PSI	14,000
	Flexural modulus of elasticity	ISO 178 (12)	MPa	3,160	ASTM D790	KSI	360
	Rockwell M hardness (14)	ISO 2039-2	-	94	ASTM D785	-	96
	Shore hardness D (14)	ISO 868	-	78	ASTM D2240	-	84
Electrical Properties	Electric strength	IEC 60243-1 (15)	kV/mm	21	ASTM D149	Volts/mil	533
	Volume resistivity	IEC 62631-3-1	Ohm.cm	10E13	IEC 60093	Ohm.cm	
	Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.	10E12	ANSI/ESD STM 11.11	Ohm/sq.	10E12
	Dielectric constant at 1 MHz	IEC 62631-2-1	-	3.20	ASTM D150	-	3.60
	Dissipation factor at 1 MHz	IEC 62631-2-1	-	0.0140	ASTM D150	-	0.0200
Miscellaneous	Colour	-	-	Blueish Gray	-	-	Blueish Gray
	Density	ISO 1183-1	g/cm³	1.44			
	Specific Gravity				ASTM D792	-	1.44
	Water absorption after 24h immersion in water of 23°C (73°F)	ISO 62 (16)	%	0.06	ASTM D570 (17)	%	0.06
	Water absorption at saturation in water of 23 °C (73°F)	-	%	0.47	ASTM D570 (17)	%	0.47
	Wear rate	ISO 7148-2 (18)	µm/km	2.00	QTM 55010 (19)	$In^3.min/ft.lbs.hrx10^{-10}$	35.00
	Dynamic Coefficient of Friction (-)	ISO 7148-2 (18)	-	0.15-0.22	QTM 55007 (20)	-	0.19
	Limiting PV at 100 FPM				QTM 55007 (21)	ft.lbs/in².min	6,000
	Limiting PV at 0.1 / 1 m/s cylindrical sleeve bearings	-	Mpa.m/s	0.26 / 0.16			
	Chemical Resistance	https://www.mcam.com/en/support/chemical-resistance-information/			https://www.mcam.com/en/support/chemical-resistance-information/		

Note: 1 g/cm³ = 1,000 kg/m³ ; 1 MPa = 1 N/mm² ; 1 kV/mm = 1 MV/m

NYP: there is no yield point

*This table, mainly to be used for comparison purposes, is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties of dry material. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design. This product data sheet and any data and specifications presented on our website shall provide promotional and general information about the Engineering Plastic Products (the "Products") manufactured and offered by Mitsubishi Chemical Advanced Materials and shall serve as a preliminary guide. All data and descriptions relating to the Products are of an indicative nature only. Neither this data sheet nor any data and specifications presented on our website shall create or be implied to create any legal or contractual obligation.

Mitsubishi Chemical Advanced Materials NV
Galgenveldstraat 12
8700 Tielt, Belgium
T +32[0] 51 42 35 11

contact@mcam.com
mcam.com

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