

# AUTOTEX (7 Series)

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## Product data sheet

Polyester film is tougher and more durable than polycarbonate and PVC film. It offers enhanced chemical resistance and dramatically improved flex life. The Autotex range of textured polyester films extends the functionality of polyester film into areas demanding high abrasion resistance together with excellent receptivity to graphic inks and windowing lacquers. Autotex has been developed for applications requiring a combination of high abrasion resistance and flexibility, such as embossed membrane switches.

### 1. Product description

Autotex is a high quality textured polyester film, consisting of a base polyester and a flexible chemically bonded, UV-cured textured coating. It is available in sheets and rolls.

#### Product range:

Autotex Fine F157, F207	Fine texture 150 and 200 micron
Autotex Velvet V157, V207	Velvet texture 150 and 200 micron

#### Primer:

Autotex (7 Series) has an ink adhesion primer on the second surface. This primer offers excellent adhesion to a wide range of solvent inks and improved adhesion to UV graphic inks\*.

#### Windows:

Autotex (7 Series) can be screen printed with Windotex to obtain a clear window (see Windotex product data sheet). Autotex Fine, because of its lighter texture, will produce clearer windows than Autotex Velvet.

#### Outdoor use:

In common with most other plastics, Autotex (7 Series) has limited long term resistance to UV light and therefore is not recommended for long term use outdoors. In order to overcome this issue, MacDermid Autotype has specially developed Autotex XE, a UV resistant version of Autotex. Please see Autotex XE Product Data Sheet.

\*We recommend that you carry out your own full printing trials and in-house evaluation

## 2. Product applications

Autotex (7 Series) is used as a substrate in the following markets:

### Markets

Membrane switch overlays  
 Facia panels  
 Nameplates  
 Labels/Product marking

### Major Benefits

- ▶ Long flex life
- ▶ Chemical and household cleaner resistance even at the edges
- ▶ Clear window facility
- ▶ Embossable
- ▶ Excellent scratch resistance
- ▶ Consistent low gloss, textured surface
- ▶ Attractive appearance

## 3. Chemical Properties

Property	Autotex	Test Method
Chemical resistance	Resistant to: Alcohols Dilute acids Dilute alkalis Esters Hydrocarbons Ketones Household cleaning agents *	DIN 42 115
Coefficient of hygroscopic expansion <sup>1</sup>	MD $8 \times 10^{-6}$ (per 1% RH) TD $7 \times 10^{-6}$ (per 1% RH)	DuPont Teijin Films Method <sup>1</sup> Between 40-80% RH
Moisture vapour transmission rate (MVTR) <sup>1</sup>	3.57g/m <sup>2</sup> /24hr	ASTM F372-73
Oxygen transmission rate <sup>1</sup>	8.2ml/m <sup>2</sup> /24 hours	ASTM D1434-82 @ 25° C, 77% RH

<sup>1</sup> Data derived from DuPont Teijin Films literature. <sup>2</sup>The Autotex coating slightly enhances most properties.

\* For more detailed information refer to Autotex solvent resistance sheet.

## 4. Electrical Properties

Property	Autotex	Test Method
Dielectric strength <sup>1</sup> 125μ 175μ	125kV/mm = 15.6 kV 105kV/mm = 18.4 kV	ASTM D149-81 6.35mm electrodes in dry air @ 25°C
Dissipation factor <sup>1</sup>	0.005	ASTM D150-70
Surface resistivity	>10 <sup>13</sup> Ω/sq 500Vd.c	ASTM D257-83 @ 20°C/54% RH
Volume resistivity <sup>1</sup>	10 <sup>15</sup> Ωm 100Vd.c	ASTM D257-83 @ 25°C/1000s

<sup>1</sup> Data derived from DuPont Teijin Films literature. <sup>2</sup> The Autotex coating slightly enhances most properties.

## 5. Mechanical Properties

Property	Autotex	Test Method
Elastic modulus (1% secant) 125μ	3600N/mm <sup>2</sup>	ASTM D882-88 23°C, @ 50% RH Strain rate - 10%/1 minute
Elongation at break 125μ	80%	ASTM D882-88 23°C, @ 50% RH Strain rate - 50%/minute
Switch life	>5 million flexes	Autotype Method <sup>3</sup>
Tensile strength at break 125μm	175N/mm <sup>2</sup>	ASTM D882-83
Tensile strength at yield point	100N/mm <sup>2</sup>	ASTM D882-88

<sup>1</sup> Data derived from DuPont Teijin Films literature <sup>2</sup> Adapted to Autotype Method, see Test method manual

<sup>3</sup> See Test method manual.

## 6. Optical Properties

Property	Autotex (150μm)	Test Method
Gardner Haze Fine Velvet	55% ±5% 71% ±5%	ASTM D1003-77 <sup>1</sup>
Gloss Level (60°) Fine Velvet	7% ±0.5% 4.3% ±0.5%	ASTM D2457-70 <sup>1</sup>
Texture profile Ra Fine Velvet Rtm Fine Velvet	1.6μ ±0.2μ 2.8μ ±0.2μ 8μ ±2μ 13.4μ ±2μ	Autotype Method <sup>2</sup>
Total luminous transmission	92% ±2%	ASTM D1003-77 <sup>1</sup>
UV absorption	1.3 - 1.4	Autotype Method <sup>2</sup> (370nm)
Yellowness index <sup>2</sup>	<3	ASTM D1925-70

<sup>1</sup> Adapted to Autotype method, see Test method manual <sup>2</sup> See Test method manual

## 7. Physical Properties

Property	Autotex	Test Method
Density <sup>1</sup>	1.40g/cm <sup>3</sup>	ASTM D1505-85 modified to DuPont Teijin Films method <sup>1</sup> at 23°C
Thicknesses	F157 150μ ± 10% F207 200μ ± 10% V157 150μ ± 10% V207 200μ ± 10%	

<sup>1</sup> Data derived from DuPont Teijin Films literature    <sup>2</sup> See Test method manual

## 8. Thermal Properties

Property	Autotex	Test Method
Coefficient of thermal expansion <sup>1</sup>	0.002%/degree	DuPont Teijin Films Method <sup>1</sup>
Coefficient of humidity expansion <sup>1</sup>	0.0009%/RH	DuPont Teijin Films Method <sup>1</sup>
Dimensional stability	0.2% maximum shrinkage MD at 120°C	Autotype Method <sup>2</sup>
Maximum processing temperature	120°C	
Maximum use temperature	Low humidity (<10%RH) 85°C High humidity (10-95%RH) ≤60°C	
Minimum use temperature	-40°C (-40°F)	Autotype Method <sup>2</sup>

<sup>1</sup> Data derived from DuPont Teijin Films literature    <sup>2</sup> See Test method manual

## 9. Ozone depleting substances

EC Regulation 594/91 classifies ozone depleting substances into a number of different groups, I-VI. Autotex does NOT contain any substance classified in groups I-VI nor have any of the substances been used by MacDermid Autotype during manufacture.

For details of the content of each of the groups, please see separate ozone depleting substances document.

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