

## Autotex Steel

### Product data sheet

Autotex<sup>®</sup> Steel (S) is a textured polyester film that when printed with a specialist metallic ink creates a stainless steel look.

Autotex<sup>®</sup> S was developed to enable screen printers to produce a range of products that create the effect of stainless steel but with all the benefits you have come to expect with Autotex<sup>®</sup> films. These include high abrasion, solvent and chemical resistance, a film flexible enough to be embossed and withstand >5 million actuations. Autotex<sup>®</sup> S is also receptive to a wide range of graphic and windowing inks allowing creative designers the opportunity to produce unique graphics and designs.

#### PRODUCT DESCRIPTION

Autotex<sup>®</sup> S is a high quality textured film, consisting of a polyester\* base coated with a flexible chemically bonded, UV-cured textured coating.

\* The term polyester is the generic term for a number of different polymers, of which polyethylene terephthalate (PET) is the most common. PET is used in MacDermid Autotype Industrial Polyester film products.

#### Product range:

Autotex Version	Gauge	
	150μ	200μ
Autotex <sup>®</sup> S with standard ink primer for solvent based screen inks	S150	S200
Autotex <sup>®</sup> S with 7-series ink primer for UV screen and solvent screen inks	S157	S207

#### Primer:

Autotex<sup>®</sup> S has an ink adhesion primer on the second surface. This primer confers excellent adhesion to a wide range of screen printable graphic inks. We have found that some mirror inks can be more brittle than solvent graphic inks, and for this reason we recommend that customers perform their own printing trials and in-house evaluations. Some customers have had success using UV ink jet flat bed printers. Please contact MacDermid Autotype for more information.



Polyester films with high gloss surfaces are prone to blocking when stored with the film surfaces touching each other. Blocking is the term given when two surfaces adhere or merge into each other and when separated leave immovable marks on the film. For this reason we recommend that users make sure that the non-textured (ink primer) surfaces are not left in contact with each other for extended periods of time.

**Windows:**

The Autotex® S finish can be screen printed with Windotex™ to obtain a clear window. The cosmetic quality of the printed window can be affected by the Steel finish, i.e. where there are deep lines in the texture these may be seen in a printed window. Special printing recommendations are available in the Windotex™ processing guidelines

**Formats:**

Autotex® S is available in sheet and roll format. The maximum roll size is 122cm x 400m with the grain running in the Machine Direction along the roll length. Standard size sheets are 61cm x 91.5cm with the grain running along the 91.5cm length.

**PRODUCT APPLICATIONS**

Autotex® S is used as a substrate in the following applications:

Membrane switch overlays

White goods appliances (to create a stainless steel finish)

Mobile phone fascias

Nameplates

Labels/Product marking

Fascia panels

**Major Benefits:**

- Consistent low gloss, textured surface that when printed with silver mirror inks gives an excellent replication of stainless steel
- Impact resistant unlike stainless steel
- No fingerprinting unlike stainless steel
- Can incorporate secret till lit features unlike stainless steel
- Second surface printing of text that is clearly viewable through the hardcoat surface
- Embossable with a long flex life
- Chemical and household cleaner resistance even at the edges
- Clear window facility
- Excellent scratch resistance



**CHEMICAL PROPERTIES**

Property	Autotex S	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)	Base film manufacturer's test 40-80% RH
Moisture vapour transmission rate (MVTR) <sup>1</sup>	3.57g/m <sup>2</sup> /24hours	ASTM F372
Oxygen transmission rate <sup>1</sup>	8.2ml/m <sup>2</sup> /24hours	ASTM D1434 @ 25°C, 77% RH

<sup>1</sup> Typical data derived from base film manufacturer's data. The Autotex<sup>®</sup> coating slightly enhances most properties

\* For more detailed information refer to Autotex<sup>®</sup> resistance sheet.

**ELECTRICAL PROPERTIES**

Property	Autotex S	Test Method
Dielectric strength <sup>1</sup>	13.5 kV	ASTM D149 6.35mm electrodes in dry air @ 25°C
Dissipation factor	0.005	ASTM D150
Surface resistivity <sup>1</sup>	$>10^{13} \Omega / \text{sq } 500\text{Vd.c}$	ASTM D257 @ 20°C / 54% RH

<sup>1</sup> Typical data derived from base film manufacturer's data



**MECHANICAL PROPERTIES**

Property	Autotex S	Test Method
Young's modulus <sup>1</sup>	3700 N/mm <sup>2</sup>	ASTM D882
Elongation at break <sup>1</sup>	70%	ASTM D1505
Switch life	>5 million flexes	MacDermid Autotype Method <sup>2</sup>
Tensile strength at break <sup>1</sup>	150 N/mm <sup>2</sup>	ASTM D882
Tensile strength at yield point <sup>1</sup>	100 N/mm <sup>2</sup>	ASTM D882
Tear strength <sup>1</sup>	350 N/mm <sup>2</sup>	ASTM D882

<sup>1</sup>Data derived from base film manufacturer's data<sup>2</sup>See Test Method Manual**OPTICAL PROPERTIES**

Property	Autotex S	Test Method
Gardner Haze	50% ±5%	ASTM D1003 <sup>1</sup>
Gloss Level (60°) With the grain (MD) Against the grain (TD)	25-30% 8-10%	ASTM D2457-03 <sup>1</sup>
Texture profile Ra with the grain (MD) Ra against the grain (TD)  Rz with the grain (MD) Rz against the grain (TD)	0.3-0.7µm 0.9-1.5µm  2.0-3.0µm 6.5-8.5µm	MacDermid Autotype Method <sup>2</sup>
Total Luminous Transmission	90% ± 2%	ASTM D1003 <sup>1</sup>
Yellowness index <sup>2</sup>	<3	ASTM E313

<sup>1</sup>Adapted to MacDermid Autotype method, see Test Method Manual<sup>2</sup>See Test Method Manual**PHYSICAL PROPERTIES**

Property	Autotex S	Test Method
Relative density <sup>1</sup>	1.39g/cm <sup>3</sup>	ASTM D1505
Thickness S150/S157 S200/S207	150µ ± 10% 200µ ±10%	MacDermid Autotype Method <sup>2</sup>

<sup>1</sup>Data derived from base film manufacturer's data<sup>2</sup>See Test Method Manual

**THERMAL PROPERTIES**

Property	Autotex S	Test Method
Coefficient of thermal expansion <sup>1</sup>	0.002%/degree	Base film manufacturer's test method
Coefficient of humidity expansion <sup>1</sup>	0.0009%/RH	Base film manufacturer's test method
Dimensional stability	0.2% max. shrinkage MD @ 120 °C	MacDermid 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 (-40F)	MacDermid Autotype Method <sup>2</sup>

<sup>1</sup>Data derived from base film manufacturer's data<sup>2</sup>See Test Method Manual

**RECOMMENDED INKS:** Please ask the member of the sales team dedicated to your region or contact [salesupport@macdermidautotype.com](mailto:salesupport@macdermidautotype.com). **PRINTING:** Please see Autotex® Printing Recommendations

**IMDS ID-Mo 12495963**

**LEGISLATIVE DIRECTIVES**

This product does not knowingly contain any phthalates, or substances listed in the European End-of-Life Vehicles (ELV), Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (RoHS) or Waste Electrical and Electronic Equipment (WEEE) Directives.

EC Regulation 594/91 classifies ozone depleting substances into a number of different groups, I-VI. Autotex® S 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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