Autoflex EB (7 Series)

Product data sheet

Polyester film is tougher and more durable than polycarbonate and PVC films. It offers enhanced chemical resistance and dramatically improved flex life. The Autoflex range of hard coated polyester films extends the functionality of polyester film into areas demanding high abrasion resistance together with excellent receptivity to graphic inks and selective textures. Autoflex EB (7 Series) has been developed for applications requiring a combination of high abrasion resistance and flexibility, such as embossed membrane switches and optical displays.

PRODUCT DESCRIPTION

Autoflex EB (7 Series) is a high quality, embossable, hard coated polyester film, consisting of a base polyester and an embossable, texturable, chemically bonded UV-cured hard surface coating. It is available in sheets and rolls; print receptive surface is protected by a cling film laminate.

Product Range:

Autoflex EB (Gloss)	G137, G187,
Gloss finish	130, 180, micron
Autoflex EB (Antiglare)	A137, A187,
Antiglare finish	130, 180, micron

Primer:

Autoflex EB (7 Series) has an ink adhesion primer on the second surface. This primer confers excellent adhesion to a wide range of solvent inks and UV graphic inks*.

Laminate:

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 un-removable marks on the film. For this reason MacDermid Autotype supply the Autoflex film range with a protective laminate and recommend that the laminate remains in place until the first print pass.

Textures:

Autoflex EB (7 Series) can be screen printed with Fototex to obtain selective textures (see Fototex product data sheet).

Outdoor use:

In common with most other plastics, Autoflex EB (7 Series) has limited long term resistance to UV light and therefore is not recommended for long term use outdoors. MacDermid Autotype has developed a textured, UV resistant film, which can be used outside. Please see Autotex XE Product Data Sheet. No outdoor version of Autoflex EB (7 Series) is available.

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

MacDermid Autotype Ltd, Grove Road, Wantage, OX12 7BZ, UK
Tel. +44 (1235) 771111 – Fax +44 (1235) 771196

PRODUCT APPLICATIONS

Autoflex EB (7 Series) is used as a substrate in the following applications:
Membrane switch overlays
Touch screens
Fascia panels
Nameplates
Labels/Product marking

Major Benefits

- Excellent scratch resistance
- Chemical and household cleaner resistance even at the edges
- Receptive to Fototex texturing varnishes
- Embossable
- Consistent gloss/antiglare surface
- Attractive appearance
- Superior flex life

CHEMICAL PROPERTIES

Property	Autoflex EB (7 Series)	Test Method
Chemical resistance	Resistant to: Alcohols Dilute Acids Dilute Alkalis Esters Hydrocarbons Ketones Household Cleaning Agents*	DIN 42 115
Coefficient of hygroscopic expansion[1]	MD 8 x 10^{-6} (per 1% RH) TD 7 x 10^{-6} (per 1% RH)	DuPont Teijin Films Method[1] Between 40-80% RH
Moisture vapour transmission rate (MVTR) [1] 125µ	2.6g/m^2/24 hours	RTM 607
Oxygen transmission rate[1] 125µ	5.3ml/m^2/24 hours	RTM 608

[1] Data derived from DuPont Teijin Films literature. The Autoflex coating slightly enhances most properties.
* For more detailed information refer to Autoflex EB Solvent Resistance Sheet.

MacDermid Autotype Ltd, Grove Road, Wantage, OX12 7BZ, UK
Tel. +44 (1235) 771111 – Fax +44 (1235) 771196

ELECTRICAL PROPERTIES

Property	Autoflex EB (7 Series)	Test Method
Dielectric strength[1] 125µ 175µ	 125kV/mm 105kV/mm	ASTM D149-81 6.35mm electrodes in dry air @ 25°C
Dissipation factor[1] 125µ	0.004 50Hz 0.006 1kHz 0.0012 10kHz	ASTM D150-70
Surface resistivity	$>10^{13}$	ASTM D257-83 500Vd.c @ 20°C/54% RH
Volume resistivity[1]	10^{15} Ωm	ASTM D257-83 100Vd.c@ 25°C/1000s

[1] Data derived from DuPont Teijin Films literature. The Autoflex coating slightly enhances most properties.

MECHANICAL PROPERTIES

Property	Autoflex EB (7 Series)	Test Method
Young's modulus[1] 125µ (1% secant)	3600N/mm^2	ASTM D882-88
Elongation at break 125µ	80%	ASTM D882-88
Switch life	>5 million flexes	MacDermid Autotype Method[2]
Tensile strength at break 125µ	175N/mm^2	ASTM D882-83 (strain rate 50%min)
Yield strength	100N/mm^2	ASTM D882 - 83

[1] Data derived from DuPont Teijin Films literature.
[2] Adapted to MacDermid Autotype Method, see Test Method Manual

OPTICAL PROPERTIES

Property	Autoflex EB (7 Series)	Test Method
Gardner haze[1]	Gloss <2% Antiglare 9% ±2%	ASTM D1003-77[2]
Gloss level (60°)[1]	Gloss 96% ±2% Antiglare TD 55% ±2% Antiglare MD 63% ±2%	ASTM D2457-03[2]
Total luminous transmission[1]	Gloss 91% ±2% Antiglare 91% ±2%	ASTM D1003-77[2]
Yellowness index[1]	Gloss <3.5 Antiglare <3.5	ASTM E313

1 Typical value for 180µ product.
[2] Adapted to MacDermid Autotype method, see Test Method Manual

MacDermid Autotype Ltd, Grove Road, Wantage, OX12 7BZ, UK
Tel. +44 (1235) 771111 – Fax +44 (1235) 771196

PHYSICAL PROPERTIES

Property	Autoflex EB (7 Series)	Test Method
Density[1]	1.40g/cm³	ASTM D1505-79 modified to Melinex test method
Taber abrasion	Gloss <5% haze Antiglare Not applicable	ASTM D1044-82 100 cycles, 500g load CS10F Wheels
Pencil hardness	3H	MacDermid Autotype Method[2]
Thicknesses	G137/A137 130µ ± 10% G187/A187 180µ ± 10%	

[1] Data derived from DuPont Teijin Films literature.
[2] See Test Method Manual.

THERMAL PROPERTIES

Property	Autoflex EB (7 Series)	Test Method
Coefficient of thermal expansion[1]	MD 19 x 10^{-6} cm cm^{-1} $^oC^{-1}$ TD 16 x 10^{-6} cm cm^{-1} $^oC^{-1}$	DuPont Teijin Films Method[1] between 20-50°C
Dimensional stability	<0.2% at 120°C MD maximum shrinkage	MacDermid Autotype Method[2]
Maximum use temperature	Low humidity (<10%RH) 85°C High humidity (10-95%RH) ≤60°C	
Minimum use temperature	-40°C (-40°F)	MacDermid Autotype Method[2]

[1] Data derived from DuPont Teijin Films literature.
[2] See Test Method Manual.

OZONE DEPLETING SUBSTANCES

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

Revision 06/09/V1

MacDermid Autotype Ltd, Grove Road, Wantage, OX12 7BZ, UK
Tel. +44 (1235) 771111 – Fax +44 (1235) 771196