

## FleXFOLD

Flexible hard coat for PET films



### Description

FleXFOLD is a siloxane polymer based coating designed for flexible PET plastic films. FleXFOLD forms highly transparent, optically clear and flexible hard-coating, which is scratch and chemical resistant, easy to clean and has excellent optical properties. FleXFOLD is capable of withstanding dynamic folding with below one-millimeter radius and as such is ideal for foldable display and touch screen applications. Compatible with standard AF treatments.

#### Main Applications

- Protective overlays
- Bendable Screens
- Lighting Fixtures / Luminaires

#### Key features

- Truly flexible coating
- Scratch Resistant Hard-Coat
- Easy-to-Clean
- Chemically Resistant
- Cost savings through improved energy efficiency
- Reduced surface reflection

### Technical Background

Plastics are everywhere due to their light weight and design flexibility. However, most of the commonly used plastics are easily scratched, susceptible to degradation by various chemicals and suffer mechanical stress when folded to a small bending radius. Optitune's robust hard coats help circumvent these issues while delivering excellent optical properties.

### How to Apply

The solution is applied as a single-layer coating using a roll-to-roll (R2R) or sheet coating process followed by thermal and UV curing steps. Coating can be carried out using slot/die, gravure, reverse gravure, Meyer bar or other method. Plasma or corona pre-treatment may be necessary depending on substrate manufacturer grade. After final curing, a stable coating performance is achieved.

For product sales, please contact

Asia Edward Huang

edward.huang@optitune.com, +86 159 9627 9587

Tim Tang

tim.tang@optitune.com, +886 921 554 309

EMEA/Americas Neil Pschirer

neil.pschirer@optitune.com, +351 927 241 218 (Portugal)

Optitune Oy

Kaitoväylä 1 F 2

90590 Oulu, Finland

<http://www.optitune.com>

## FleXFOLD

### Performance on Melinex™ 406 (50 micron) PET film

Optical Performance	No coating	FleXFOLD
Transmittance % at 550 nm	88.68%	90.42%
Reflectance % at 550 nm	7.0%	5.3%
Haze Cmod	0.47	0.34
L*	95.43	96.14
a*	-0.03	-0.07
b*	0.56	0.63

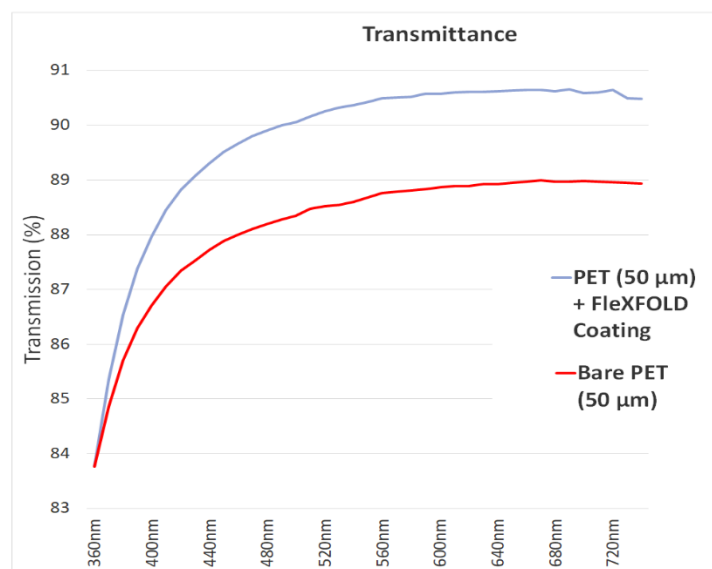


Table 1. Optical performance comparison (ASTM D1003)

Graph 1. FleXFOLD increases T% across visible light spectrum

Mechanical / Physical Performance	No coating	FleXFOLD	FleXFOLD + common AF*	Standard
Pencil Hardness	< 9B	2H		ASTM D3363, Elcometer Tester
Adhesion	n/a	5B		ASTM D3359-09, Elcometer cross-hatch tester
Foldability	n/a	100 000 cycles - PASS		Inward bending around 2 mm diameter mandrel
Abrasion Resistance (steel wool)	VERY POOR	No scratches after 200 cycles	No scratches after 2000 cycles	TABER® Linear Abraser - Model 5750 1000 g, 20 x 20 mm abrasant, 2" stroke, 60 cycles per minute
Water Contact Angle	70°	105°	115°	Biolin Scientific - Attension Theta Static Water Contact Angle Measurement

Table 2. Mechanical performance of bare 50 µm PET film and FleXFOLD coated PET film. \*Common PFPE type AF layer applied on top of FleXFOLD layer.

### Solution properties, storage and handling

Solution should be stored below room temperature, preferably +4°C, in a well-ventilated place. Keep containers tightly closed and protected from sources of heat and light. Shelf life is 6 months from the date of manufacture. For working safety, consult product Material Safety Data Sheet.

The information given is based on our best knowledge at the date of issue but carries no guarantee or acceptance of responsibility. For further data on products toxicological, ecological and safety aspects, please consult the MSDS. It is the responsibility of the user of the product to ensure to satisfaction that the product is suitable for the intended purpose and methods of use. We do not accept responsibility for any harm caused by the use of this information.

For product sales, please contact

Asia Edward Huang

edward.huang@optitune.com, +86 159 9627 9587

Tim Tang

tim.tang@optitune.com, +886 921 554 309

EMEA/Americas Neil Pschirer

neil.pschirer@optitune.com, +351 927 241 218 (Portugal)

Optitune Oy

Kaitoväylä 1 F 2

90590 Oulu, Finland

<http://www.optitune.com>