



## PLEXIGLAS® Films for the Labels Industry

PLEXIGLAS® films are extremely versatile products based on polymethyl methacrylate (PMMA). PMMA is a highly transparent, colorless polymer that stands out in particular due to its weathering stability.

Its excellent compatibility with a wide range of additives and pigments makes it possible to obtain almost every imaginable property profile. From highly transparent or opaque colored, with a smooth or textured surface, to extremely durable or ultra-destructible, the unique and versatile properties of polymethyl methacrylate make PLEXIGLAS® films ideal and indispensable partners for the label industry.

### Durable labels

As an overlamine, PLEXIGLAS® films are designed with a sophisticated, state-of-the-art UV protection package; ensuring substrates are protected against weathering even after several years of use in outdoor applications. This allows the critical information printed on the label to remain easy to read throughout its service life.

Due to the high optical quality of PLEXIGLAS® film surfaces, all conventional methods can be used to easily print on it. Durable labels can be produced without the need of an overlamine, which offers a cost advantage over other substrates.

Regardless of its use as an overlamine or facestock film, the aesthetic PLEXIGLAS® surface shows a visual appearance of the highest quality coupled with a “no label” look. Therefore, PLEXIGLAS® film supports the superior presentation of applications for the automotive, pharmaceutical and consumer goods industries.

### Safety films/safety labels

Every year, companies in different sectors of the industry invest millions in developing and enhancing their products, placing themselves in the firing line of counterfeiters whose fake products have a negative



impact on brand perception and sales. This may have disastrous consequences on the image of companies and brands.

The ability to adjust the brittleness of PLEXIGLAS® films makes it possible to manufacture special ultra-destructible, acrylic-based labels that are irreversibly damaged whenever a removal attempt is made. The degree of brittleness can be adjusted for: clear-transparent and white, highly reflective grades of film with a smooth or matte surface texture. This makes it possible to cater for all existing applications in the safety label industry. An additional feature of these films is their protective masking layer, which enhances process safety during further processing.

### Environmental protection and sustainability

Sustainability is of increasing importance. Environmental protection and environmental awareness are key criteria for making purchasing decisions. Using specific PLEXIGLAS® films, labels can be produced with special consideration to these aspects. Being free of halogens and plasticizers, easy to recycle, and being odorless are some of the benefits that PLEXIGLAS® films offer.

### Conformity for items intended to come into contact with food

Special grades of PLEXIGLAS® films meet the requirements of Commission Regulation (EU) No. 10/2011 on plastic materials and articles intended to come into contact with food.

### Selection of white PLEXIGLAS® Films

PLEXIGLAS® Film		WFO02		WFO07	WFO11
Properties	Test method	Unit	Value		
<b>Profile</b>			<b>Durable</b>	<b>Destructible</b>	<b>Ultra-destructible</b>
Thickness		µm	50	50	50
<b>Optical</b>					
Luminous reflectance (D65)	ISO 11664	%	82	81	89
L* (in reflection, D65/10°)			92,5	92,6	95,7
a* (in reflection, D65/10°)			-0,9	-1,0	-1,0
b* (in reflection, D65/10°)			0,9	-1,2	-0,6
Color coordinate x (in reflection, D65/10°)			0,311	0,310	0,312
Color coordinate y (in reflection, D65/10°)			0,330	0,329	0,331
UV transmittance (280–380 nm)	DIN EN 410	%	0	0	0
Gloss (20°/60°/85°) Top side	ISO 2813	GU	45 / 68 / 94	46 / 77 / 95	2 / 6 / 36
<b>Mechanical</b>					
Tensile stress at yield	ISO 527-3	MPa	33	41	No yield
Nominal strain at break	ISO 527-3	%	> 50	25	< 9
<b>Miscellaneous</b>					
Accelerated weathering resistance	ISO 4892-2, method A, cycle 1	h	10000 No visible change	10000 No visible change	10000 No visible change
Mass per unit area (without masking film)	DIN EN ISO 2286-2	g/m <sup>2</sup>	64	64	69
Surface tension	DIN 53364	mN/m	38–40	38–40	42
Requirement of Commission Regulation (EU) No 10/2011			–	–	+

## Selection of transparent PLEXIGLAS® Films

PLEXIGLAS® Film		OF079		OF080
Properties	Test method	Unit	Value	
<b>Profile</b>			<b>Durable</b>	<b>Ultra-destructible</b>
Thickness		µm	50	50
<b>Optical</b>				
Luminous transmittance (D65)	ISO 13468-2	%	92	92
Yellowness index (D65/10°)	ISO 17223		0,5	0,5
Haze	ASTM D1003		< 1	< 1,5
UV transmittance (280–380 nm)	DIN EN 410	%	91	< 1
<b>Mechanical</b>				
Tensile stress at yield	ISO 527-3	MPa	72	35
Nominal strain at break	ISO 527-3	%	< 15	> 50
<b>Miscellaneous</b>				
Accelerated weathering resistance	ISO 4892-2, method A, cycle 1	h	–	5000 No visible change
Mass per unit area (without masking film)	DIN EN ISO 2286-2	g/m <sup>2</sup>	59	60
Surface tension	DIN 53364		38–42	38–42
Requirement of Commission Regulation (EU) No 10/2011			+	–

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Certified to DIN EN ISO 9001 (Quality) and DIN EN ISO 14001 (Environment)

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