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**TROSIFOL®**

# EXTRA STRONG

STRUCTURAL PVB FILM



ENGLISH



# EXTRA SAFETY FOR GLAZING



Strength, toughness and elasticity were the goals in the development of new TROSIFOL® ES - EXTRA STRONG PVB film. Used in structural glazing, it consequently has product properties that exceed those of standard TROSIFOL® films. This makes it an excellent choice for special applications such as glass floors and stairs, curtain walls and balustrade glazing.

Despite its superior structural strength, TROSIFOL® ES is as easy to process as standard TROSIFOL® films.

> Only when bent does the bow  
reveal its strength. <

Franz Grillparzer, Austrian author



#### PRODUCT BENEFITS

- Improved residual strength
- High shear modulus
- Excellent edge stability
- Outstanding clarity

## LAMINATED SAFETY GLASS SHOWS ITS STRENGTH

A key feature of new TROSIFOL® ES film is its high residual strength, as demonstrated in extensive tests at a German college of higher education.

TROSIFOL® ES also displays excellent edge stability.





On the following pages you will find the most important technical data as an initial guide to design. Should you require further parameters, please contact your Technical Service specialist or write to [trosifol@kuraray.eu](mailto:trosifol@kuraray.eu).

## TECHNICAL DATA



Laminated safety glass consisting of TROSIFOL® ES between two plies of fully tempered glass



## PHYSICAL DATA

Properties	Test method	Unit	Value
Density	DIN 53479	g/cm <sup>3</sup>	1.081
Refractive index	DIN 53491	-	1.4872
Thermal conductivity	DIN EN 12939	W/mK	0.152
Thermal expansion coefficient	ISO 11359	1/K x 10 <sup>-4</sup>	1.60
Specific heat	ISO 11357	J/gK	0.351
Thermal resistance	DIN EN 12664	m <sup>2</sup> x K/W	0.0056
Tear resistance	ISO 527	N/mm <sup>2</sup>	≥ 32
Elongation at break**	ISO 527	%	≥ 180

\*\* General approval from the building authorities for laminated safety glass pending from the German Institute for Construction Engineering, Berlin, Germany

## TROSIFOL® ES

Product	Thickness [mm]	Colour	Roll width [mm]	Roll length [m/PE]
TROSIFOL® ES	0.76	Clear	1,000/1,300/1,600/2,000/2,250/2,600/3,210	250

## TROSIFOL® ES - RELAXATION MODULUS G(t) AS A FUNCTION OF TIME AND TEMPERATURE\*

Temperature [°C]	Time							
	3 s	30 s	5 min	30 min	5 days	1 week	3 weeks	1 year [365 d.]
10	699	603	502	420	157	142	95	19
20	342	230	122	55	2,8	2,5	2,0	1,6
30	58	14	4,0	2,3	1,6	1,6	1,5	1,5
40	3,4	1,9	1,6	1,6	-	-	-	-
50	1,7	1,6	1,5	1,5	-	-	-	-
60	1,5	1,5	-	-	-	-	-	-

\* All values measured at Fraunhofer Institut Darmstadt, Germany.

## LIGHT DATA TO DIN EN 410\*\*\*

Properties	Unit	Value
Light transmittance	%	90
Light reflectance 8°	%	8
Radiation transmittance	%	75
Radiation reflectance	%	7
Radiation absorption	%	18
UV transmittance	%	0.15
g-value	%	79
Shading coefficient	%	99

\*\*\* All data measured in accordance with EN 410:2011-04 on laminated safety glass with two plies of 4 mm float glass

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**TROSIFOL®**  
PVB FILM FOR LAMINATED SAFETY GLASS

For further products of the Kuraray Group, please visit [www.kuraray.eu](http://www.kuraray.eu).  
You can find information on our TROSIFOL® products and services at  
[www.trosifol.com](http://www.trosifol.com).

**Kuraray Europe GmbH**  
Business Area PVB  
Mülheimer Straße 26  
53840 Troisdorf, Germany  
Phone: +49 (0) 22 41/25 55 - 220  
E-Mail: [trosifol@kuraray.eu](mailto:trosifol@kuraray.eu)

**Kuraray America, Inc.**  
Kuraray PVOH Business Unit - TROSIFOL®  
2625 Bay Area Blvd., Suite 600  
Houston, Texas 77058-1551, USA  
Phone: +1 800 423-9762  
E-Mail: [trosifol.usa@kuraray.eu](mailto:trosifol.usa@kuraray.eu)

**Kuraray Co., LTD**  
PVB Division  
Ote Center Bldg.  
1-1-3, Otemachi  
Chiyoda-Ku, Tokyo, 100-8115, Japan  
Phone: +81 3 6701 1453  
E-Mail: [trosifol.japan@kuraray.eu](mailto:trosifol.japan@kuraray.eu)

**Kuraray Shanghai Co., Ltd.**  
PVB Division  
Unit 2207, 2 Grand Gateway  
3 Hongqiao Road, Xu Hui District  
Shanghai 200030, China  
Phone: +86 21 6119-8111  
E-Mail: [trosifol.china@kuraray.eu](mailto:trosifol.china@kuraray.eu)

**Kuraray India Private Limited**  
PVB Division  
Unit no 16,17 & 18, 1<sup>st</sup> Floor,  
Southern Park, Saket District Centre  
New Dehli-110017, India  
Phone: +91 11 4610 2900  
E-Mail: [trosifol.india@kuraray.eu](mailto:trosifol.india@kuraray.eu)

**Kuraray Asia Pacific Pte. Ltd.**  
PVB Division  
331 North Bridge Road  
#18-02 Odeon Towers  
Singapore 188720, Singapore  
Phone: +65 6337 4123  
E-Mail: [trosifol.asia@kuraray.eu](mailto:trosifol.asia@kuraray.eu)

**OOO TROSIFOL®**  
Kolzowa, 24  
606440 Bor  
Nizhny Novgorod Region, Russia  
Phone: +7 83159 6-77-28  
E-Mail: [info@kuraray.ru](mailto:info@kuraray.ru)

[WWW.TROSIFOL.COM](http://WWW.TROSIFOL.COM)

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