

Advanced Polymer Films

**RowTec®**  
Polycarbonate Film

**SolaTuf®**  
Impact Modified Acrylic Film

**RowLux®**  
Illusion Film



Engineered to Deliver Variety™

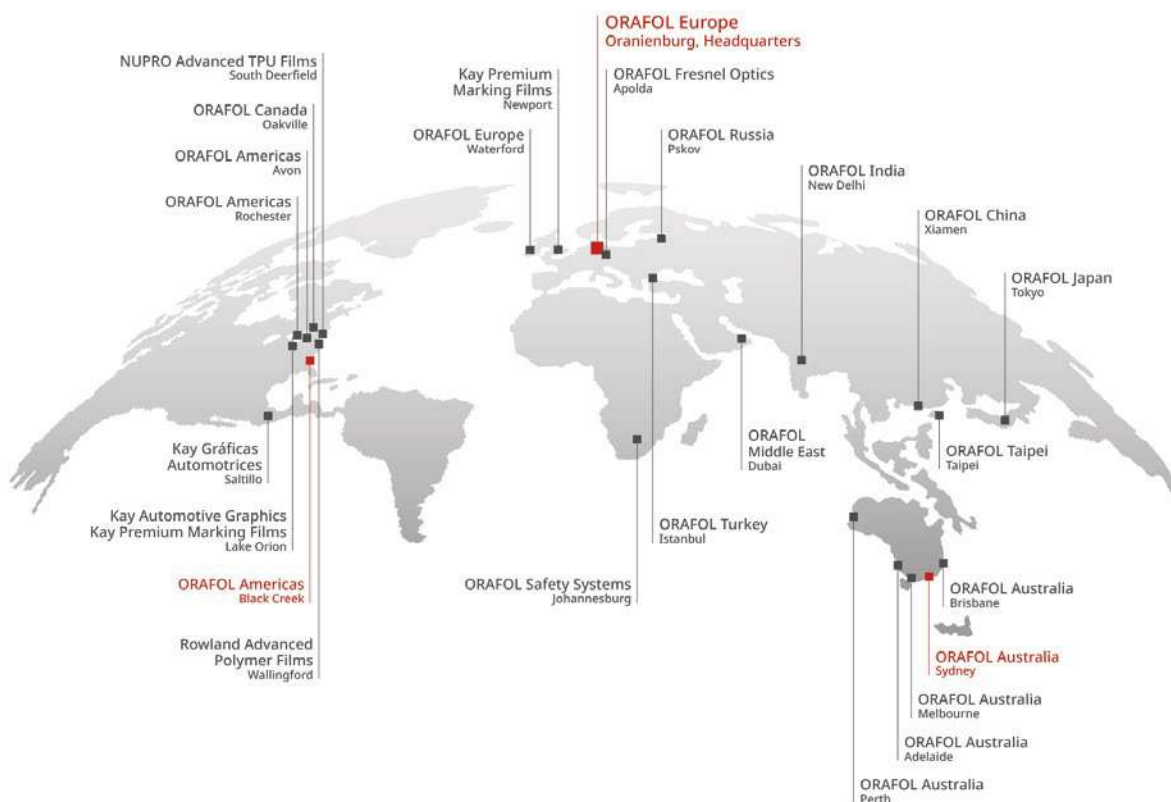


# ORAFOL Europe GmbH

## Headquarters and production facility

ORAFOL Europe GmbH is one of the market leading manufacturers worldwide of innovative self-adhesive graphic materials, and adhesive tape systems. Rowland's technical excellence together with ORAFOL's worldwide distribution network make the newly created Advanced Polymer Films Division the first choice in outstanding film quality and reliable local service.

### ORAFOL's Worldwide Locations



# Advanced Polymer Films

The ORAFOL Advanced Polymer Films line includes the high-quality extruded film and sheet product families RowTec® Polycarbonate Films (PC), SolaTuf® Acrylic Films (AC) and RowLux® Multi-lensed Polycarbonate Films (PC).

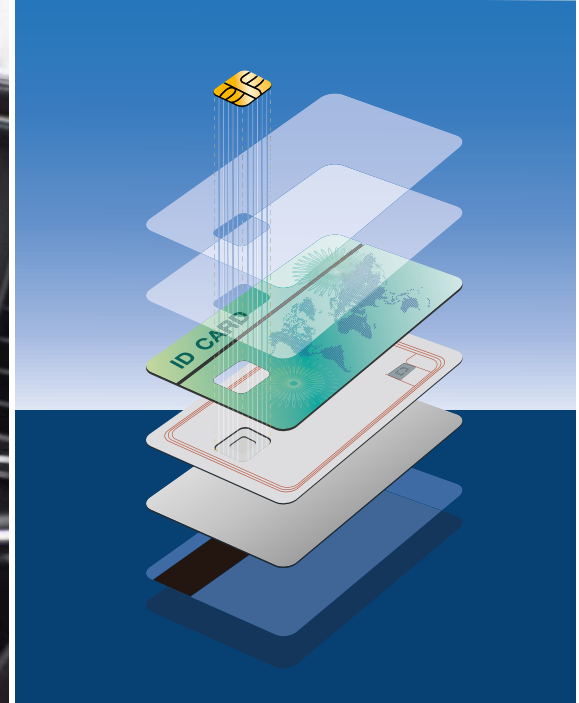
**Made in Germany.**

---

|    |                    |   |
|----|--------------------|---|
| 4  | <b>RowTec®</b>     | PC1 Standard Range                            |
| 4  | <b>RowTec® FDA</b> | PC3 Direct Food Contact                       |
| 4  | <b>RowTec® SC</b>  | PC for Secure Cards and Documents             |
| 5  | Technical Data     |   |
| 6  | <b>RowTec® UV</b>  | PC9 UV Stability / PC1-UV Stability, Enhanced |
| 6  | Technical Data     |   |
| 7  | <b>RowTec® V</b>   | PC7 Flame Retardant (UL94, VTM-2)             |
| 7  | <b>RowTec® FR</b>  | PC8 Flame Retardant (UL94, VTM-0)             |
| 7  | Technical Data     |   |
| 8  | <b>SolaTuf®</b>    | AC Impact Modified                            |
| 8  | Technical Data     |   |
| 9  | <b>RowLux®</b>     | PC Illusion Film                              |
| 9  | Technical Data     |   |
| 11 | <b>ORABOND®</b>    | 1375 / 1377 Transfer Tapes                    |

---

**PLEASE NOTE:** Properties reported in this brochure are typical of average lots. ORAFOL makes no representation that the material in any particular shipment will conform exactly to the value given herein nor is ORAFOL responsible for the performance of this material for a given application. The user of the material should perform their own testing to determine the suitability of the material for the intended use. Applications depicted herein are not specifications. They are provided as information only.



## RowTec® Polycarbonate Film – PC1

RowTec® PC1 Polycarbonate Film is extruded from the finest quality resin and to the highest quality for graphic arts grade films. Key performance properties include superior optical, thermal, mechanical and electrical characteristics. RowTec® film is available in a variety of custom colours, textures, and thicknesses for the ultimate in design freedom. It is easily printed, die-cut, embossed, thermoformed, and hot stamped. RowTec® film delivers the clarity, dimensional stability, and impact resistance properties you demand.

## RowTec® FDA Polycarbonate Film – PC3

RowTec® FDA Polycarbonate Film is a specialty grade of film that complies with the U.S. Food, Drug and Cosmetic Act and Food Additive Regulations 21 CFR 177.1580. Typical applications include food applications which require this compliance. RowTec® FDA clear film is available in a variety of textures and thicknesses for optimum design freedom.

## For Secure Cards and Documents

### RowTec® SC Polycarbonate Film - PC1, PCH

RowTec® SC Polycarbonate Films, PCX-XXX-2600, meet the growing demand for durable performance, precision and reliability required by manufacturers of security and identity cards, passports, licenses and many other Secure Card applications.

RowTec® SC Films are an extension of the RowTec® family of Polycarbonate Films that for many years have been highly valued by customers around the world for the most demanding precision graphic applications.

RowTec® SC is well-known for consistent quality and stability. RowTec® SC consists of three types of films: clear, white and laser markable. The clear films are available in thicknesses from 0,051 mm - 0,762 mm and deliver excellent clarity while the white films provide extremely high opacity for their thickness, which also ranges from 0,051 mm - 0,762 mm. The laser markable films are available in thicknesses from 0,051 mm - 0,635 mm.

RowTec® SC Films have a unique surface texture designed specifically for Secure Card applications.

## Technical Data - Overview

Typical bulk properties for clear films unless otherwise noted

| Property  | Test Method | Unit                     | Value                   |
|---|-------------|--------------------------|-------------------------|
| <b>Physical</b>   |             |                          |                         |
| Specific Gravity  | ASTM D-792  | g / cm <sup>3</sup>      | 1,20                    |
| Area Factor   | ASTM D-590  | m <sup>2</sup> / kg / μm | 833                     |
| Water Absorption at Equilibrium                             | ASTM D-570  | %                        | 0,32                    |
| Rockwell Hardness   | ASTM D-785  | R Scale                  | 118                     |
| Pencil Hardness   | ASTM D-3363 | Scratch Hardness         | B                       |
| <b>Optical</b>  |             |                          |                         |
| Refractive Index @ 25 °C                                    | ASTM D-542  | N <sub>D</sub>           | 1,586                   |
| Light Transmission  | ASTM D-1003 | %                        | 89                      |
| Haze <sup>4</sup>   | ASTM D-1003 | %                        | 0,5                     |
| Yellowness Index  | ASTM D-1925 | ---                      | < 1                     |
| <b>Mechanical</b>   |             |                          |                         |
| Tensile Strength, Break                                     | ASTM D-638  | MPa                      | 72                      |
| Tensile Strength, Yield                                     | ASTM D-638  | MPa                      | 60                      |
| Tensile Elongation, Break                                   | ASTM D-638  | %                        | 150                     |
| Tensile Modulus of Elasticity                               | ASTM D-638  | MPa                      | 2.400                   |
| Tear Strength, Initial                                      | ASTM D-1004 | N / μm                   | 0,25 - 0,32             |
| Tear Strength, Propagation                                  | ASTM D-1922 | g / μm                   | 1,18 - 2,15             |
| Burst Strength <sup>1</sup>                                 | ASTM D-774  | Mullen, MPa              | 0,275 - 0,310           |
| Fold Endurance <sup>2</sup>                                 | M.I.T.      | Double Folds             | 200                     |
| Impact Strength, Gardner <sup>3</sup>                       | ASTM D-5420 | J                        | 13                      |
| <b>Thermal</b>  |             |                          |                         |
| Deflection Temperature under Flexural Load @ 1,8 MPa        | ASTM D-648  | °C                       | 142                     |
| Tensile Heat Distortion @ 0,34 MPa                          | ASTM D-1637 | °C                       | 150                     |
| Specific Heat Capacity @ 25 °C                              | ASTM C-351  | J / g / °C               | 1,26                    |
| Thermal Conductivity  | ASTM C-177  | W / m °C                 | 0,20                    |
| Coefficient of Thermal Expansion                            | ASTM D-696  | cm / cm / °C             | 68,4 x 10 <sup>-6</sup> |
| Strain Relief @ 135 °C                                      | ASTM D-1204 | %                        | < 0,2                   |
| Brittleness Temperature                                     | ASTM D-746  | °C                       | -135                    |
| Vicat Softening Temperature                                 | ASTM D-1525 | °C                       | 152                     |
| <b>Electrical</b>   |             |                          |                         |
| Dielectric Strength @ 22 °C in oil, short time <sup>2</sup> | ASTM D-149  | kV / cm                  | 670                     |
| Dielectric Constant 60 Hz / 1 MHz                           | ASTM D-150  | ---                      | 3,00 / 3,00             |
| Dissipation Factor 60 Hz / 1 MHz                            | ASTM D-150  | ---                      | 0,001 / 0,002           |
| Volume Resistivity  | ASTM D-257  | Ω-cm                     | 10 <sup>17</sup>        |
| Surface Resistivity   | ASTM D-257  | Ω-cm <sup>2</sup>        | 10 <sup>15</sup>        |

Footnotes: (1) Value for 0,025 mm film (2) Value for 0,250 mm film (3) Value for 0,762 mm film (4) Value measured for Gloss / Gloss film



## RowTec® UV Polycarbonate Film – PC9

RowTec® UV Film utilises a specialty UV modified resin which enables improved ultraviolet stability in outdoor environmental conditions. This film will exhibit less yellowing when compared to standard non-UV modified polycarbonate film. Applications include overlays, outdoor menu boards, nameplates, labels, and decals where UV stability is desired.

## RowTec® UV Enhanced Polycarbonate Film – PC1

The first surface of our PC1-001-AM00 Film is made of a high performance UV Resistant Film that provides excellent UV blocking for the RowTec® polycarbonate film base. The first surface is a glare-free velvet texture while the second surface is fine matt. Standard thicknesses range from 0,178 mm - 0,762 mm. Common applications include outdoor nameplates, labels and decals as well as gas pump graphics.

### Technical Data - Overview

Typical bulk properties for clear films unless otherwise noted

| Property   | RowTec® UV                |                                  |                         | RowTec® UV Enhanced |                          |       |
|--|---------------------------|----------------------------------|-------------------------|---------------------|--------------------------|-------|
|  | Test Method               | Units                            | Value                   | Test Method         | Units                    | Value |
| <b>Physical</b>  |                           |                                  |                         |                     |                          |       |
| Specific Gravity   | ASTM D-792                | g / cm <sup>3</sup>              | 1,20                    | ASTM D-792          | ---                      | 1,20  |
| Area Factor  | ASTM D-590                | m <sup>2</sup> / kg / μm         | 832                     | ASTM D-590          | m <sup>2</sup> / kg / μm | 832   |
| Water Absorption at Equilibrium  | ASTM D-570                | %                                | 0,35                    | ASTM D-570          | %                        | 0,32  |
| Rockwell Hardness  | ASTM D-785                | R Scale                          | 118                     | ASTM D-785          | M Scale                  | 40    |
| <b>Optical</b>   |                           |                                  |                         |                     |                          |       |
| Refractive Index @ 25 °C   | ASTM D-542                | N <sub>D</sub>                   | 1,587                   | ---                 | ---                      | ---   |
| Light Transmission   | ASTM D-1003               | %                                | 89                      | ASTM D-1003         | %                        | > 89  |
| Haze   | ASTM D-1003               | %                                | < 1                     | ---                 | ---                      | ---   |
| Yellowness Index   | ASTM D-1925               | ---                              | < 1                     | ASTM D-1925         | ---                      | < 1   |
| <b>Weatherability</b>  |                           |                                  |                         |                     |                          |       |
| Yellowness Index, control  | ASTM D-2565               | ---                              | < 1                     | ---                 | ---                      | ---   |
| Yellowness Index, PC9 after 1000 hours Xenon Arc   | ASTM D-2565               | ---                              | < 1,5                   | ---                 | ---                      | ---   |
| Yellowness Index, PC9 after 2000 hours Xenon Arc   | ASTM D-2565               | ---                              | < 3                     | ---                 | ---                      | ---   |
| Yellowness Index, regular PC after 1000 hours Xenon Arc  | ASTM D-2565               | ---                              | < 13                    | ---                 | ---                      | ---   |
| Yellowness Index, regular PC after 2000 hours Xenon Arc  | ASTM D-2565               | ---                              | < 18                    | ---                 | ---                      | ---   |
| <b>Mechanical</b>  |                           |                                  |                         |                     |                          |       |
| Tensile Strength, Break  | ASTM D-638                | MPa                              | 60                      | ASTM D-882          | MPa                      | 65    |
| Tensile Strength, Yield  | ASTM D-638                | MPa                              | 60                      | ASTM D-882          | MPa                      | 60    |
| Tensile Elongation, Break  | ASTM D-638                | %                                | 120 - 150               | ASTM D-882          | %                        | 170   |
| Tensile Modulus of Elasticity  | ASTM D-638                | MPa                              | 2.400                   | ASTM D-882          | MPa                      | 1.450 |
| Tear Strength, Initial   | ASTM D-1004               | N / μm                           | 0,25 - 0,32             | ---                 | ---                      | ---   |
| Tear Strength, Propagation   | ASTM D-1922               | g / μm                           | 1,18 - 2,15             | ---                 | ---                      | ---   |
| Impact Strength, Gardner <sup>2</sup>  | ASTM D-5420               | J                                | 13                      | ---                 | ---                      | ---   |
| <b>Thermal</b>   |                           |                                  |                         |                     |                          |       |
| Deflection Temperature under Flexural Load @ 1,8 MPa   | ASTM D-648                | °C                               | 137                     | ---                 | ---                      | ---   |
| Coefficient of Thermal Expansion   | ASTM D-696                | cm / cm / °C                     | 68,4 x 10 <sup>-6</sup> | ---                 | ---                      | ---   |
| Brittleness Temperature  | ASTM D-746                | °C                               | -135                    | ---                 | ---                      | ---   |
| Vicat Softening Temperature  | ASTM D-1525               | °C                               | 152                     | ---                 | ---                      | ---   |
| <b>Electrical</b>  |                           |                                  |                         |                     |                          |       |
| Dielectric Strength @ 22 °C in oil, short time <sup>1</sup>  | ASTM D-149                | kV / cm                          | 670                     | ---                 | ---                      | ---   |
| Dielectric Constant 60 Hz / 1 MHz  | ASTM D-150                | ---                              | 3,00 / 3,00             | ---                 | ---                      | ---   |
| Dissipation Factor 60 Hz / 1 MHz   | ASTM D-150                | ---                              | 0,10 / 1,11             | ---                 | ---                      | ---   |
| Volume Resistivity   | ASTM D-257                | Ω-cm                             | 10 <sup>17</sup>        | ---                 | ---                      | ---   |
| Surface Resistivity  | ASTM D-257                | Ω-cm <sup>2</sup>                | 10 <sup>15</sup>        | ---                 | ---                      | ---   |
| <b>UV Stability<sup>1</sup> Xenon Arc Accelerated Weathering - ASTM G15 Cycle 2 "UV ENHANCED ONLY"</b> |                           |                                  |                         |                     |                          |       |
| Yellowness Index - Baseline Film   | ---                       | ---                              | ---                     | ASTM D-1925         | ---                      | 0,16  |
| Yellowness Index - 500 Hours   | ---                       | ---                              | ---                     | ASTM D-1925         | ---                      | -0,13 |
| Yellowness Index - 1.000 Hours   | ---                       | ---                              | ---                     | ASTM D-1925         | ---                      | -0,02 |
| Yellowness Index - 1.500 Hours   | ---                       | ---                              | ---                     | ASTM D-1925         | ---                      | 0,12  |
| Yellowness Index - 2.000 Hours   | ---                       | ---                              | ---                     | ASTM D-1925         | ---                      | 0,38  |
| Yellowness Index - 3.000 Hours   | ---                       | ---                              | ---                     | ASTM D-1925         | ---                      | 0,36  |
| <b>Chemical Resistance - Surface Contact for 1 Hour @ 73o F "UV ENHANCED ONLY"</b>                     |                           |                                  |                         |                     |                          |       |
| Acetone - Fail   | Methylene Chloride - Fail | Formula 409® - Pass              |                         |                     |                          |       |
| Butyl Cellosolve - Fail  | Toluene - Fail            | Premium Unleaded Gasoline - Pass |                         |                     |                          |       |
| Ethyl Acetate - Fail   | Xylene - Fail             | Windex® with Amonia-D® - Pass    |                         |                     |                          |       |
| Isopropanol - Fail   |                           |                                  |                         |                     |                          |       |

Footnotes: (1) Value for 0,380 mm Film

## RowTec® V Polycarbonate Film – PC7 (UL94, VTM-2)

RowTec® V Polycarbonate Film is a clear thin gauge film which carries a UL-94 VTM-2 rating for 0,127 mm - 0,254 mm thicknesses. It is available in a variety of textures. Common uses include backlit panels, membrane switches, nameplates, labels and decals. It is easily prined, die-cut, embossed, thermoformed and hot stamped. RowTec® film delivers the clarity, dimensional stability and impact resistance properties you demand.

## RowTec® FR Flame Retardant Polycarbonate Film – PC8 Flame Retardant (UL94, VTM-0)

RowTec® FR is a thin gauge, flame retardant polycarbonate film available in clear and black. It carries a UL-94 VTM-0 rating for 0,076 mm - 0,102 mm clear film. Beginning at 0,127 mm up to 0,762 mm, RowTec® FR carries a UL-94 V-0 rating for clear film. For black film, the UL-94 V-0 rating applies to a thickness range of 0,406 mm - 0,609 mm. It is available in a variety of textures. Common uses include barrier insulation, backlit panels, commercial business equipment, electronic shielding, and flame retardant nameplates and labels.

### Technical Data - Overview

Typical bulk properties for clear films unless otherwise noted

| Property   | Test Method | Units               | Value                  |
|--|-------------|---------------------|------------------------|
| <b>Physical</b>  |             |                     |                        |
| Specific Gravity   | ASTM D-792  | g / cm <sup>3</sup> | 1,32                   |
| Water Absorption at 24 hours                               | ASTM D-570  | %                   | 0,28                   |
| <b>Optical</b>   |             |                     |                        |
| Refractive Index @ 25 °C                                   | ASTM D-542  | ND                  | 1,60                   |
| Light Transmission <sup>1</sup>                            | ASTM D-1003 | %                   | 89                     |
| Yellowness Index <sup>1</sup>                              | ASTM D-1925 | ---                 | < 1                    |
| <b>Mechanical</b>  |             |                     |                        |
| Tensile Strength, Break <sup>1</sup>                       | ASTM D-882  | MPa                 | 60                     |
| Tensile Strength, Yield <sup>1</sup>                       | ASTM D-882  | MPa                 | 70                     |
| Tensile Elongation, Break <sup>1</sup>                     | ASTM D-882  | %                   | 130                    |
| Tensile Modulus of Elasticity <sup>1</sup>                 | ASTM D-882  | MPa                 | 2.200                  |
| Tear Strength, Initial <sup>1</sup>                        | ASTM D-1004 | N / μm              | 0,3                    |
| Tear Strength, Propagation <sup>1</sup>                    | ASTM D-1922 | g / μm              | 2                      |
| Impact Strength, Gardner <sup>2</sup>                      | ASTM D-5420 | J                   | 28                     |
| <b>Thermal</b>   |             |                     |                        |
| Deflection Temperature under Flexural Load @ 1,8 MPa       | ASTM D-648  | °C                  | 142                    |
| Specific Heat Capacity @ 25 °C                             | ASTM E-1269 | J / g / °C          | 1,26                   |
| Thermal Conductivity                                       | ASTM D-5470 | W / m °C            | 0,20                   |
| Coefficient of Thermal Expansion                           | ASTM E-831  | cm / cm / °C        | 5,8 x 10 <sup>-5</sup> |
| Glass Transition Temperature                               | ASTM D-3418 | °C                  | 152                    |
| Brittleness Temperature                                    | ASTM D-746  | °C                  | -135                   |
| Vicat Softening Temperature                                | ASTM D-1525 | °C                  | 152                    |
| <b>Electrical</b>  |             |                     |                        |
| Dielectric Strength @ 22°C in oil, short time <sup>1</sup> | ASTM D-149  | kV / cm             | 590                    |
| Dielectric Constant @ 60 Hz / 1MHz                         | ASTM D-150  | ---                 | 2,9 / 2,8              |
| Dissipation Factor @ 60 Hz / 1MHz                          | ASTM D-150  | ---                 | 0,0026 / 1,17          |
| Volume Resistivity   | ASTM D-257  | Ω-cm                | 10 <sup>17</sup>       |
| Surface Resistivity  | ASTM D-257  | Ω-cm <sup>2</sup>   | 10 <sup>15</sup>       |
| Arc Resistance, Tungsten Electrodes                        | ASTM D-495  | sec                 | 62                     |
| <b>Flammability</b>  |             |                     |                        |
| <b>RowTec® V</b>   |             |                     |                        |
| Flammability Classification (Clear 125 - 250 μm)           | UL 94       | ---                 | VTM-2                  |
| <b>RowTec® FR</b>  |             |                     |                        |
| Flammability Classification (Clear 75 - 100 μm)            | UL 94       | ---                 | VTM-0                  |
| Flammability Classification (Clear 125 - 762 μm)           | UL 94       | ---                 | V-0                    |
| Flammability Classification (Black 410 - 610 μm)           | UL 94       | ---                 | V-0                    |

Footnotes: (1) Value for 0,025 mm film (2) Value for 0,762 mm film

## SolaTuf® Acrylic Film – AC1

SolaTuf® AC1 Impact Modified Acrylic Film offers seven to ten times the impact strength of conventional acrylics. It has good chemical resistance, superb weatherability, UV resistance and transparency that far exceeds polycarbonate film. Printing, die cutting, hot stamping, thermoforming, and insert molding are the most common process techniques for this film. Key applications include laminates, signage, thermoformed parts, and coating applications where weatherability, UV resistance, and chemical resistance are essential.

## SolaTuf® Acrylic Film – AC2

SolaTuf® AC2 Impact Modified Acrylic Film is less modified than SolaTuf® AC1 and SolaTuf® AC6, which equates to a higher modulus and higher tensile strength. SolaTuf has transparency that far exceeds polycarbonate film.

## SolaTuf® Acrylic Film – AC6

SolaTuf® AC6 Impact Modified Acrylic Film is a graphic arts quality film which offers seven to ten times the impact strength of conventional acrylics. It has good chemical resistance, superb weatherability, UV resistance and transparency that far exceeds polycarbonate film. Printing, die cutting, hot stamping, thermoforming and insert molding are the most common process techniques for this film.

### Technical Data - Overview

Typical bulk properties for clear films unless otherwise noted

| Property   | AC1 / AC2 / AC6<br>Test Method | AC1 / AC2 / AC6<br>Units | AC1                  | AC2                  | AC6                  |
|--|--------------------------------|--------------------------|----------------------|----------------------|----------------------|
| <b>Physical</b>  |                                |                          |                      |                      |                      |
| Specific Gravity   | ASTM D-792                     | g / cm <sup>3</sup>      | 1,15                 | 1,17                 | 1,16                 |
| Water Absorption, 24 hours                                     | ASTM D-570                     | %                        | 0,40                 | 0,30                 | 0,42                 |
| Rockwell Hardness  | ASTM D-785                     | M Scale                  | 45                   | 62                   | 40                   |
| <b>Optical</b>   |                                |                          |                      |                      |                      |
| Refractive Index @ 25 °C                                       | ASTM D-542                     | N <sub>D</sub>           | 1,49                 | 1,49                 | 1,49                 |
| Light Transmission   | ASTM D-1003                    | %                        | 90,0                 | 92,0                 | 91,7                 |
| Haze   | ASTM D-1003                    | %                        | < 4.0                | < 4.0                | < 4.0                |
| <b>Mechanical</b>  |                                |                          |                      |                      |                      |
| Tensile Strength, Break  | ASTM D-638                     | MPa                      | 38                   | 47                   | 45                   |
| Tensile Elongation, Break                                      | ASTM D-638                     | %                        | 45                   | 35                   | 40                   |
| Tensile Modulus of Elasticity                                  | ASTM D-638                     | MPa                      | 1.860                | 2.580                | 1.760                |
| Flexural Strength  | ASTM D-790                     | MPa                      | 70                   | 75                   | 60                   |
| Flexural Modulus   | ASTM D-790                     | MPa                      | 1.860                | 2.270                | 1.790                |
| Notched Izod Impact @ 23 °C                                    | ASTM D-256                     | J / m of notch           | 59                   | 37                   | 64                   |
| <b>Thermal</b>   |                                |                          |                      |                      |                      |
| Deflection Temperature under Flexural Load @ 18 MPa - Annealed | ASTM D-648                     | °C                       | 79                   | 85                   | 80                   |
| Coefficient of Thermal Expansion                               | ASTM D-696                     | cm / cm / °C             | 8 x 10 <sup>-5</sup> | 8 x 10 <sup>-5</sup> | 8 x 10 <sup>-5</sup> |
| Vicat Softening Temperature - Unannealed                       | ASTM D-1525                    | °C                       | 98                   | 99                   | 108                  |
| Glass Transition Temperature, Tg                               | ASTM D-3418                    | °C                       | 103                  | 104                  | 107                  |
| Maximum Continuous Service Temperature                         | ---                            | °C                       | 63 - 74              | 68 - 79              | 66 - 77              |







## RowLux® - a multi-lensed polycarbonate-base film

RowLux® is a multi-lensed thermoplastic film that manipulates light to create a variety of unique and interesting visual effects. These remarkable motion and dimensional effects are obtained from thousands of minute parabolic lenses that are molded into the surface on both sides of the film. These lenses create a pattern of absorption and reflection of light which result in unique and highly dramatic optical characteristics.

Shimmering silk, stardust sparkles, geometric repetition and 3D effects are some of the ways to describe the Illusion Films. The material lends itself to many downstream processing methods. Printability is the key feature of RowLux®. RowLux® Illusion Film can also be easily die cut and adhesively bonded to many different substrates.

Applications for RowLux® are as varied as the imagination allows. It has been used in architectural interiors, point-of-purchase displays, gaming machines, clothing, apparel and accessories, foot-wear, business cards, decals, home furnishings, musical instruments and more. There are virtually limitless possibilities available to your designers and engineers.

### Technical Data - Overview

Typical bulk properties for clear films unless otherwise noted

| Property   | Test Method | Units               | Value                   |
|--|-------------|---------------------|-------------------------|
| <b>Physical</b>                                      |             |                     |                         |
| Specific Gravity                                     | ASTM D-792  | g / cm <sup>3</sup> | 1,20                    |
| Water Absorption at Equilibrium                      | ASTM D-570  | %                   | 0,32                    |
| Rockwell Hardness                                    | ASTM D-785  | R Scale             | 118                     |
| Pencil Hardness                                      | ASTM D-3363 | Scratch Hardness    | B                       |
| <b>Mechanical</b>                                    |             |                     |                         |
| Tensile Strength, Break                              | ASTM D-638  | MPa                 | 72                      |
| Tensile Strength, Yield                              | ASTM D-638  | MPa                 | 60                      |
| Tensile Elongation, Break                            | ASTM D-638  | %                   | 150                     |
| Tensile Modulus of Elasticity                        | ASTM D-638  | MPa                 | 2.400                   |
| Tear Strength, Initial                               | ASTM D-1004 | N / μm              | 0,25 - 0,32             |
| Tear Strength, Propagation                           | ASTM D-1922 | g / μm              | 1,18 - 2,15             |
| Impact Strength, Gardner                             | ASTM D-5420 | J                   | 13                      |
| <b>Thermal</b>                                       |             |                     |                         |
| Deflection Temperature under Flexural Load @ 1,8 MPa | ASTM D-648  | °C                  | 142                     |
| Tensile Heat Distortion @ 0.34 MPa                   | ASTM D-1637 | °C                  | 150                     |
| Coefficient of Thermal Expansion                     | ASTM D-696  | cm / cm / °C        | 68,4 x 10 <sup>-6</sup> |
| Brittleness Temperature                              | ASTM D-746  | °C                  | -135                    |
| Vicat Softening Temperature                          | ASTM D-1525 | °C                  | 152                     |



**RowTec®**  
Polycarbonate Film

## ORAFOL Advanced Polymer Films

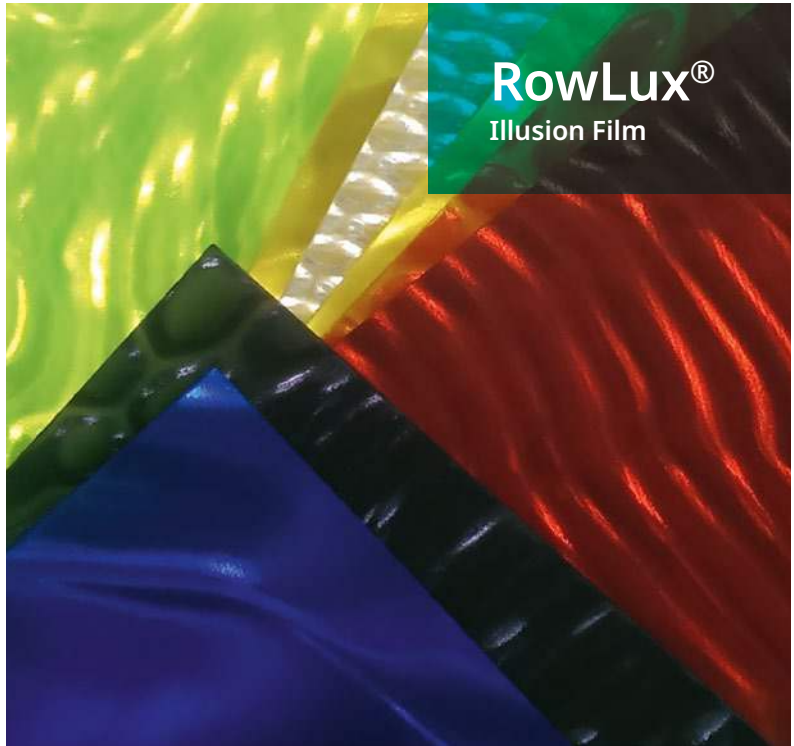
- High quality plastic film and sheet solutions

ORAFOL acquired Rowland Technologies Inc. of Wallingford, CT, USA in 2017. Rowland® Advanced Polymer Films, formerly Rowland Technologies, is a specialty manufacturer of high-quality polymeric films with a unique extrusion process and proprietary in-house tooling techniques. Rowland's technical excellence together with ORAFOL's worldwide distribution network make the newly created Advanced Polymer Films Division the first choice in outstanding film quality and reliable local service.

Engineered to Deliver Variety™



**SolaTuf®**  
Impact Modified  
Acrylic Film



**RowLux®**  
Illusion Film



## Related Products - Adhesive Tape Systems

**ORABOND® 1375** (60µm) and **ORABOND® 1377** (120µm) are highly transparent pure acrylic adhesive transfer tapes with a moisture stable PE coated brown craft liner. These products have excellent slitting and die cutting capabilities, giving good lay-flat and slip properties for handling of printed plastic and metal sheets when used in sheet feed conversion equipment.

These products offer high temperature and shear performance, reducing slipping or lifting. In addition, both transfer tapes exhibit excellent aging, UV and chemical resistance.

Both are also available in sheets with the product number **ORABOND® 1375S** or **ORABOND® 1377S**.

**ORABOND® 1375** and **ORABOND® 1377** are well balanced products, specially suited for lamination and bonding of:

- Polycarbonate
- Polyesters
- Metal
- Other high surface energy materials

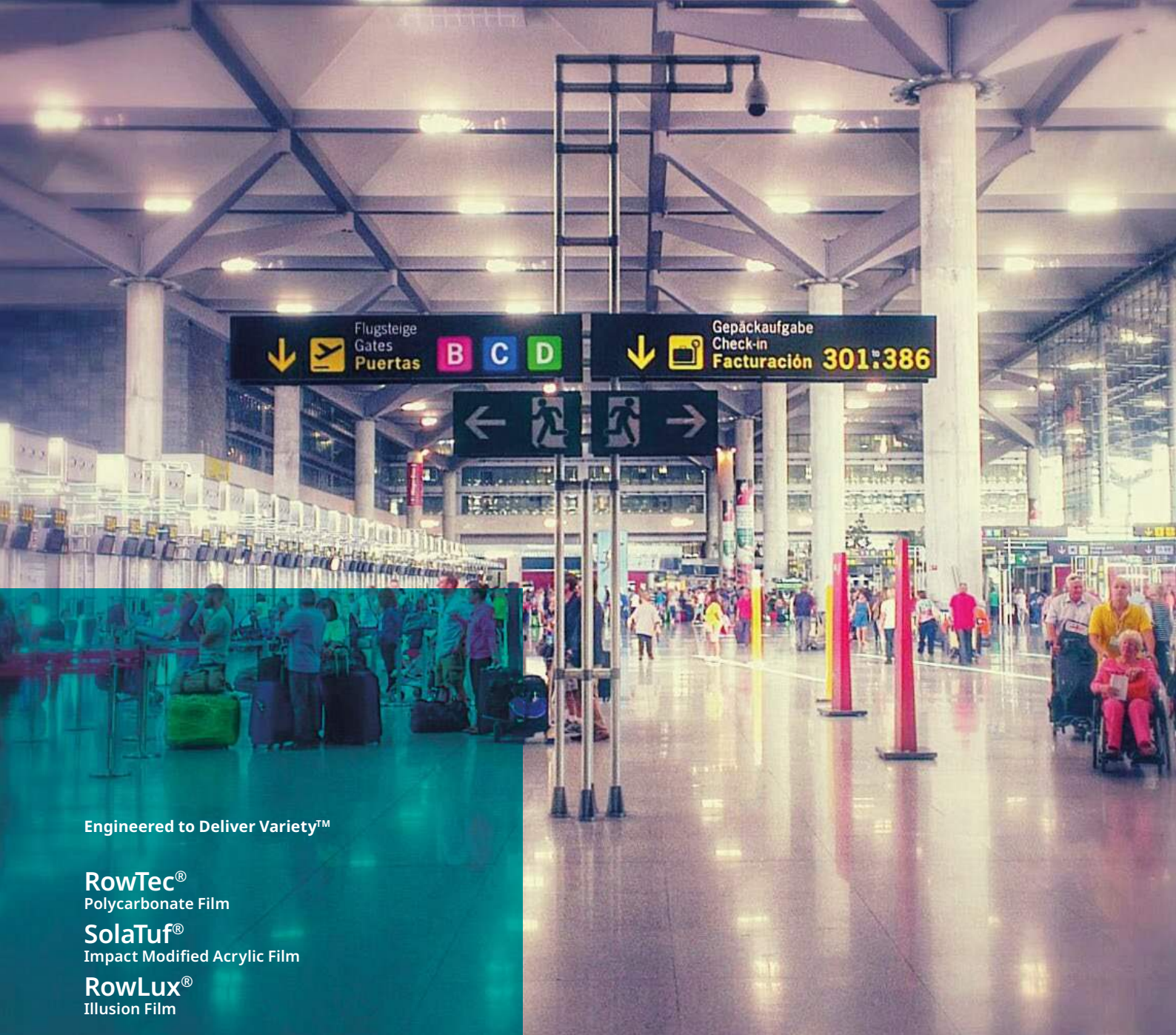
It is also the product of choice when working with:

- Membrane switches and keyboards
- Labels and decals
- Nameplates



More information about **ORABOND® 1375** and **ORABOND® 1377**





Engineered to Deliver Variety™

**RowTec®**

Polycarbonate Film

**SolaTuf®**

Impact Modified Acrylic Film

**RowLux®**

Illusion Film

**ORAFOL Europe GmbH**  
Orafolstraße 1, D-16515 Oranienburg, Germany

Tel: +49 (0)3301 864-0 / [advanced.polymer.films@orafol.de](mailto:advanced.polymer.films@orafol.de)

Find out more about our products at:  
[www.orafol.com](http://www.orafol.com) · [www.orafoleurope.com](http://www.orafoleurope.com)

