SIMOSHIELD
Plastic Sheets for Door Manufacture
SIMOSHIELD – Stylish Design, Superb Processing

Incorporating premium-quality decorative foils by RENOLIT, SIMOSHIELD sheets offer a “protective shield” against UV influences and reduce heat build up. This makes them the perfect choice for outdoor applications.

SIMOSHIELD sheets have outstanding thermoforming properties and are suitable for a wide range of processing methods.

**Impressive features**
- UV- and weather-resistant
- Minimised risk of cracking and bowing
- Very easy to thermoform
- IR-reflective (decorative sheets)
- High impact resistance
- Low water absorption
- Service temperature range from – 20°C to + 60°C
- Cadmium- and lead-free production
- REACH- and RoHS-compliant

SIMOSHIELD encompasses a range of PVC-T sheets with a visible and palpable woodgrain finish. They are specially designed for door manufacture. The decorative foils are applied to coloured SIMONA® PVC-T sheets during extrusion in a single operation. There is no wood decor to apply afterwards – a significant economic advantage.
Minimised risk of cracking and bowing
Sheets made of SIMONA® PVC-T show no signs of thermally induced instability (cracking or bowing) even after lengthy use. This is attributable to the special stability of SIMONA® PVC-T. What is more, the SST foil technology developed by RENOLIT makes SIMOSHIELD particularly heat reflective.

Sheets with a sun protection
The decorative foils used for SIMOSHIELD sheets include the Solar Shield Technology (SST) developed by RENOLIT. Therefore, the foiled sheets remain cooler, as well as offering greater dimensional stability and crack resistance to ensure a longer service life.

SIMONA’s promise of quality
In accordance with our general warranty statements, we give a ten-year warranty on SIMOSHIELD within Europe. For further information, please contact our Technical Service Centre.

Many different fields of application
- Door manufacture by means of thermoforming
- External doors and gates
- Panelling
- Designer articles with a woodgrain look
- Garage doors
Excellent thermoformability
SIMOSHIELD sheets have excellent thermoforming properties and allow a significant reduction in cycle times, ensuring greater economy and superior quality.

SIMOSHIELD sheets may be hot-formed to make thin-walled components as well as large-area components within a wide temperature range. The quality of hot-formed components chiefly depends on uniform warming of the sheets on the thermoforming line, preferably from both sides.

Outstanding benefits
Processing SIMOSHIELD is easy and highly efficient. Even complex shapes and undercuts can be achieved with the thermoforming process.

In sheet production the fine embossed textures of SIMOSHIELD remain highly tactile and visible, even after the thermoforming process. SIMOSHIELD can be thermoformed without pre-drying, provided the sheets have been stored and processed according to our recommendations. These product features represent significant benefits for door manufacturers, as well as delivering added value for end customers.

Processing capability
- Thermoforming
- Hot forming
- Glueing
- Die cutting
- Welding
- Laser cutting
- Water-jet cutting
- Sawing
- Screw fixing
- Drilling
- Milling

For further details, please refer to our work.infos.
Combining the Benefits of Plastic with a Woodgrain Look

Function of RENOLIT-SST foil (IR-reflective)

Solar Shield Technology
For optimum performance only RENOLIT foils with the Solar Shield Technology (SST) are used in SIMOSHIELD.

In the case of plastic doors it is infrared radiation that is mainly responsible for the rise in temperature. Special constituents in the decorative foil reflect the radiation in this wavelength range like a mirror. A rise in temperature is considerably reduced by the reflection of infrared radiation.

Many advantages
The decorative foils used in SIMOSHIELD have a thickness of 290 μm with embossing and are provided with IR reflection. They have the characteristic look and feel of woodgrain.

Glue-free, integral joining of the foil and sheet material ensures maximum protection against delamination. The embossed texture is modified in such a way that it remains intact even after the thermoforming process.

Comparison of the rise in temperature of SIMOSHIELD and SIMONA® PVC-T based on ASTM D 4803-97

The graph shows the significant differences in the rise of temperature in PVC-T compared to foiled SIMOSHIELD sheets.

Layer design of SIMOSHIELD

03/2014 SIMOSHIELD SIMONA
### SIMOSHIELD – Product Range and Material Specifications

#### Material specifications

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<thead>
<tr>
<th></th>
<th>SIMOSHIELD</th>
<th>SIMONA® PVC-T</th>
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</thead>
<tbody>
<tr>
<td>Density, g/cm³, DIN EN ISO 1183</td>
<td>1.370</td>
<td>1.460</td>
</tr>
<tr>
<td>Yield stress, MPa, DIN EN ISO 527</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td>Tensile modulus of elasticity, MPa, DIN EN ISO 527</td>
<td>2,500</td>
<td>3,500</td>
</tr>
<tr>
<td>Temperature range, °C</td>
<td>– 20 to +60</td>
<td>– 20 to +60</td>
</tr>
<tr>
<td>Vicat temperature, °C</td>
<td>+ 72</td>
<td>+ 74</td>
</tr>
<tr>
<td>Fire behaviour</td>
<td>DIN 4102</td>
<td>B1 low flammability</td>
</tr>
<tr>
<td></td>
<td>BS 476</td>
<td>Class 1</td>
</tr>
</tbody>
</table>

#### Extruded sheets (sizes/thicknesses in mm)

<table>
<thead>
<tr>
<th></th>
<th>SIMOSHIELD</th>
<th>SIMONA® PVC-T</th>
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<tbody>
<tr>
<td>2,175 x 975</td>
<td>1.5 (including decorative foil)</td>
<td>1.4</td>
</tr>
<tr>
<td>2,000 x 860</td>
<td>1.5 (including decorative foil)</td>
<td>–</td>
</tr>
<tr>
<td>2,000 x 855</td>
<td>–</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Colours: golden oak, black cherry, mahogany, sapele, walnut, oak dark, oak rustic, anthracite grey, choice of whites, caramel, brown
Special types on request
On request, SIMOSHIELD sheets can also be supplied in other sizes and thicknesses as well as in other designs from the RENOLIT range.

Embossed sheets
On request, we manufacture white, caramel and brown SIMONA® PVC-T sheets with special grain structure.

Availability
Various sizes, thicknesses and decors are available from stock. Please contact our sales department for further details concerning availability:

Phone +49 (0) 67 52 14-0
Fax +49 (0) 67 52 14-211
sales@simona.de

SIMONA Advisory Service
Our staff at the Technical Service Centre will be happy to advise you:

- on issues concerning further processing and professional thermoforming
- by offering theoretical and practical training sessions

Phone +49 (0) 67 52 14-587
Fax +49 (0) 67 52 14-302
tsc@simona.de
Welcome to SIMONA –
Put Your Trust in Quality and Expertise

SIMONA is acknowledged as one of the leading producers and development partners in the field of thermoplastics. Drawing on our outstanding abilities in process engineering, we specialise in the production of sheets, finished parts, profiles, welding rods, rods, pipes, fittings and valves tailored to the most exacting standards.

Certified quality
Our products and services are designed to deliver the very best quality imaginable. The management systems operated by SIMONA AG with regard to quality, the environment and energy resources are certified in accordance with DIN EN ISO 9001, DIN EN ISO 14001 and DIN EN ISO 50001.

SIMONA AG
Teichweg 16
55606 Kirn
Germany
Phone +49 (0) 67 52 14-0
Fax +49 (0) 67 52 14-211
mail@simona.de
www.simona.de

SIMONA FAR EAST LIMITED
Room 501, 5/F
CCT Telecom Building
11 Wo Shing Street
Fo Tan, Hong Kong
China
Phone +852 29 47 01 93
Fax +852 29 47 01 98
sales@simona-hk.com
www.simona-cn.com

SIMONA S.A.S. FRANCE
Z.I. 1, rue du Plant Loger
95335 Domont Cedex
France
Phone +33 (0) 1 39 35 49 49
Fax +33 (0) 1 39 91 05 58
mail@simona-fr.com
www.simona-fr.com

SIMONA UK LIMITED
Telford Drive
Brookmead Industrial Park
Stafford ST16 3RT
Great Britain
Phone +44 (0) 1785 224 444
Fax +44 (0) 1785 222 800
mail@simona-uk.com
www.simona-uk.com

SIMONA S.r.l. ITALIA
UNIPERSONALE
Via Padana Superiore 19/B
20090 Vimodrone (MI)
Italy
Phone +39 02 25 08 51
Fax +39 02 25 08 520
mail@simona-it.com
www.simona-it.com

SIMONA Plast-Technik s.r.o.
U Autodílen 23
49603 Liptósvára
Hungary
SIMONA ENGINEERING PLASTICS
(Guangdong) Co. Ltd.
No. 368 Jinou Road
High & New Technology Industrial Development Zone
Jiangmen, Guangdong
China 529000

SIMONA AMERICA INC.
64 N. Conahan Drive
Hazleton, PA 18201
USA
Phone +1 888 501 2992
Fax +1 800 522 4857
mail@simona-america.com
www.simona-america.com

SIMONA ENGINEERING PLASTICS TRADING (Shanghai) Co. Ltd.
Room C, 19/F, Block A
Jia Fa Mansion
129 Da Tian Road, Jing An District
Shanghai
China 200041
Phone +86 21 6267 0881
Fax +86 21 6267 0885
shanghai@simona-cn.com.cn
www.simona-cn.com

SIMONA ENGINEERING PLASTICS TRADING (Shanghai) Co. Ltd.
Room C, 19/F, Block A
Jia Fa Mansion
129 Da Tian Road, Jing An District
Shanghai
China 200041
Phone +86 21 6267 0881
Fax +86 21 6267 0885
shanghai@simona-cn.com.cn
www.simona-cn.com

IMONA ENGINEERING PLASTICS TRADING (Shanghai) Co. Ltd.
Room C, 19/F, Block A
Jia Fa Mansion
129 Da Tian Road, Jing An District
Shanghai
China 200041
Phone +86 21 6267 0881
Fax +86 21 6267 0885
shanghai@simona-cn.com.cn
www.simona-cn.com

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