What is SUNMAP®?

SUNMAP® is an ultra-high molecular weight polyethylene (UHMW-PE* resin) porous film developed by Nitto using its proprietary technology and special manufacturing processes. SUNMAP® retains the superior characteristics of ultrahigh-molecular-weight polyethylene such as chemical resistance, abrasion resistance, and impact resistance, which when coupled with porosity, brings new characteristics such as excellent air permeability, low friction coefficient and cushioning properties.

The main characteristics of SUNMAP®

- **Resistance**
  - SUNMAP® film possesses excellent resistance to oil and grease.
  - SUNMAP® film is highly resistant to chemicals.
  - SUNMAP® film is not affected by alkali solutions, ketones and esters.

- **Slippery Easy to Process**
  - Due to its outstanding resistance to abrasion, SUNMAP® film has very low levels of dust.
  - Due to its outstanding resistance to abrasion, SUNMAP® film has excellent cushioning properties.

- **Protection**
  - SUNMAP® film offers protection from water droplets.
  - SUNMAP® film is extremely malleable and can be processed into any number of shapes or forms.

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Standard type</th>
<th>Antistatic type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average pore size</td>
<td>mm</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Permeability</td>
<td>air</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>MPa</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Elongation</td>
<td>%</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Air permeability (at a thickness of 0.5mm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface resistance</td>
<td>Ω</td>
<td>10^10</td>
<td>10^10</td>
</tr>
</tbody>
</table>

*Measured value at a thickness of 2.0mm

The contents of this catalogue are valid as of March 2020. The properties are subject to change without notice. Please contact us on our website for product availability. The information contained in this catalogue is subject to change without prior notice. This can be for, but not limited to, product improvement or other reasons at our own discretion. The data and figures contained in this natural are NOT guaranteed values but typical values. The application examples of products stated in this catalogue are for illustrative purposes only and NOT guaranteed. Please read all instructions completely before use.

Nitto Denko Corporation

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*The acronym is short for ultra-high molecular weight polyethylene
Ultra-high molecular weight polyethylene × Porous making = SUNMAP®

Nitto uses its specific technologies to create ultra-high molecular weight polyethylene with porous characteristics and excellent qualities. SUNMAP® is a new material with excellent air permeability, low friction coefficient and cushioning properties. It is born.

SUNMAP® is our response to ideas from our customers – the possible applications are limitless. Nitto continues to strive towards greater advances in high molecular compound technology, whilst aiming to develop a global niche in a variety of sectors.

Applications of SUNMAP®

- Fixing the glass scribe for use with liquid crystal panels
- Fixing glass and ceramic sheets for cutting
- Fixing lenses (the spherical side) during the polishing process
- Fixing during the wafer dicing process
- Fixing screen printing
- A slider for the axis on small motors
- A slider on office appliance equipment
- Various types of linings
- A diffuser panel for illuminations, etc.
- A projector screen
- An instrumentation panel for automobiles
- Pad pods for raising seedlings
- A separator for batteries
- A waterproof membrane for domestic electrical appliances
- Various types of filters

In addition to the examples noted here, SUNMAP® is used in a variety of different fields.

SUNMAP® Table of Sizes

<table>
<thead>
<tr>
<th>Product number</th>
<th>Thickness</th>
<th>Handling width (mm)</th>
<th>Sheet type (mm)</th>
<th>Roll type (10m)</th>
<th>Pore size (%)</th>
<th>Average pore size (um)</th>
<th>Porosity (%)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Grade</td>
<td>0.1</td>
<td>160–200</td>
<td>200–1200</td>
<td>23</td>
<td>13</td>
<td>60</td>
<td>Base film</td>
<td></td>
</tr>
<tr>
<td>Antistatic</td>
<td>0.2</td>
<td>160–200</td>
<td>200–1200</td>
<td>23</td>
<td>13</td>
<td>60</td>
<td>Antistatic</td>
<td></td>
</tr>
<tr>
<td>One side flat surface</td>
<td>0.6</td>
<td>160–200</td>
<td>200–1200</td>
<td>23</td>
<td>13</td>
<td>60</td>
<td>One side flat surface</td>
<td></td>
</tr>
<tr>
<td>Wide version of LC-TW</td>
<td>1.0</td>
<td>160–200</td>
<td>200–1200</td>
<td>23</td>
<td>13</td>
<td>60</td>
<td>Improved sliding properties compared with LC-TW1</td>
<td></td>
</tr>
<tr>
<td>Antistatic</td>
<td>0.8</td>
<td>160–200</td>
<td>200–1200</td>
<td>13</td>
<td>90</td>
<td>Air permeability with adhesive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inorganic</td>
<td>0.9</td>
<td>600–1500</td>
<td>Not available as a roll type</td>
<td>13</td>
<td>90</td>
<td>Air permeability with adhesive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antistatic</td>
<td>0.9</td>
<td>600–1500</td>
<td>Not available as a roll type</td>
<td>13</td>
<td>90</td>
<td>Improved sliding properties compared with LC-TW1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved sliding properties compared with LC-TW1</td>
<td>1.0</td>
<td>160–200</td>
<td>200–1200</td>
<td>23</td>
<td>38</td>
<td>68</td>
<td>Smooth surface</td>
<td></td>
</tr>
</tbody>
</table>

Please consult with us if you have any queries regarding size.

Warnings related to product use:

- This product should not come into contact with a living body, nor should it be used as any form of medical product that may come into contact with bodily fluids or any living organism.
- The storage environment and temperature must be controlled.
- This product should be used only for its specified purpose and not for any other use therein.
- In the event that this product is burned, please avoid direct sunlight and keep in a cool location.

Support products: Items related to Engineering Plastic Products (TEMISH, SUNMAP, NITOFLON Adhesive Tape, etc.)

Sample Size: A4, other sizes available

If you have any questions about this product, please contact us.

Please direct your inquiries to: Technical Support Center (EYES), Engineering Plastic Materials.

E-mail: eyes@nitto.co.jp

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