New Material for Illuminated Panels

MC-PET Sheet Properties

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Value</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>kg/m³</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Aver. foam size</td>
<td>mm</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Total reflectance</td>
<td>%</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Tensile strength</td>
<td>MPa</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>Elongation</td>
<td>%</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Tear strength</td>
<td>N/cm</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>Flexural strength</td>
<td>MPa</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>Flexural modulus</td>
<td>MPa</td>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>Aver. linear expansion</td>
<td>%</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Thermal deformation</td>
<td>%</td>
<td>1.18</td>
<td></td>
</tr>
<tr>
<td>Thermal conductivity</td>
<td>W/mK</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>Surface specific resistivity</td>
<td>Ω·m</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Heat deformation temperature (100g)</td>
<td>°C</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Heat flow meter</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Optical properties

Mechanical properties

Electrical properties

Thermal properties

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For further information contact:

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Facade Signboard of a Convenience Store

MC-PET

60% to 70% reduction of the energy needed for a conventional facade signboard.

- Scaling down to a one-light system saves 50% energy.
- Furthermore, when used with an energy-saving fluorescent light, a total energy saving of 70% can be achieved.

Thin Signboard

MC-PET

- Reflects light internally to sign panels with improved sign surfaces
- Cuts energy cost of facade signs by 50%
- Reduces illumination blurs and color variations in LED planar light sources (backlights and signboards)

LED planar light source (backlight and signboard)

- Reduces uneven light output.
- Reduces fluctuations in light output.
- Thin structure is possible.
- The number of LEDs can be reduced if the board is constant in thickness.

Structure of LED planar light source

LED planar light source (backlight and signboard)

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MC-PET Realizes Bright, Vivid Displays

1. Reflectance is increased 99%, of which 96% is diffused reflection. Reflection is balanced between blue and red light.

Reflectance is the ratio of the intensity of the light reflected from the surface of a material to the intensity of the light falling on its surface. In this context, MC-PET is designed to enhance the visibility of the light reflected back to its source, balancing the blue and red light components.

2. Energy costs can be reduced by 50% for facade signs and 30% for conventional signs.

Energy efficiency in lighting is crucial for reducing costs and environmental impact. MC-PET's high reflectance properties make it an effective solution for signs, potentially cutting energy costs by up to 50% for facade signs and 30% for conventional signs.

3. Illumination blurs (striped patterns of lamps) are reduced. Please consult us for blurs related to especially thin signs (under 40 mm).

Illumination blur is a phenomenon where the light from a lamp creates a blurred or striped pattern on a sign or screen. By reducing this effect, MC-PET helps maintain a clear and vivid display, even for thin signs.

4. Installation is easy with a cutter knife. MC-PET panels can be attached behind fluorescent lamps with special two-sided adhesive tape.

MC-PET panels are designed for easy installation, allowing for secure attachment to fluorescent lamps with dedicated adhesive tape.

5. Maintenance

Although MC-PET is treated with an anti-static process, we recommend cleaning once per year to maintain longevity.

6. Can be used with various types of products

Various applications and products can benefit from MC-PET technology, including conventional fluorescent lighting systems and showcases.

Countermeasures of Illumination Blurring on Sign Surfaces

<table>
<thead>
<tr>
<th>Color wavelength (nm)</th>
<th>Reflectance</th>
<th>Reflectance</th>
<th>Reflectance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>300-400</td>
<td>400-500</td>
<td>500-600</td>
</tr>
<tr>
<td>Red</td>
<td>600-700</td>
<td>700-800</td>
<td>800-900</td>
</tr>
<tr>
<td>Green</td>
<td>900-1000</td>
<td>1000-1100</td>
<td>1100-1200</td>
</tr>
</tbody>
</table>

MC-PET Reflection Panel

<table>
<thead>
<tr>
<th>Color wavelength (nm)</th>
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</tr>
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<tr>
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</tr>
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</tr>
<tr>
<td>Green</td>
<td>900-1000</td>
</tr>
</tbody>
</table>

Energy savings per year

- Energy savings per year: 7,300 yen per square meter (1.5m x 1.2m), the use of fluorescent lamps reduces the energy cost.
- Energy savings per day: 20 watts per day, for a showcase, the energy cost is reduced by 30%.

**Installation and Maintenance**

- Use a cutter knife to install MC-PET panels behind fluorescent lamps.
- Clean the panels once a year to maintain their efficiency.
- MC-PET is designed for easy installation, requiring no specialized tools.

**Technical Specifications**

- **Product Name:** MC-PET
- **Material:** PET (Polyethylene Terephthalate)
- **Panel Thickness:** 0.5 mm
- **Size:** Various, customizable

**Additional Information**

- **Installation:** Use the provided adhesive tape for secure attachment.
- **Maintenance:** Regular cleaning is recommended to maintain efficiency.

**Benefits**

- **Energy Efficiency:** Reduces energy costs by up to 50% for facade signs and 30% for conventional signs.
- **Illumination Clarity:** Reduces illumination blurs, improving clarity and visibility.
- **Ease of Installation:** Requires minimal tools for installation, suitable for various environments.
- **Maintenance:** Low maintenance, easy to clean.

**Applications**

- **Retail Displays:** Ideal for signs and displays in retail environments.
- **Signage:** Enhances visibility and clarity for signs.
- **Architectural Elements:**Suitable for various architectural elements requiring high reflectance and energy efficiency.

**Further Information**

- For more detailed information or consultation, please contact us.

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**Figure 1:** Reflectance and Diffuse Reflectance Graphs

**Figure 2:** Energy Costs Reduction Graphs

**Figure 3:** Illumination Blur Reduction Graphs

**Figure 4:** Installation Methodology

**Figure 5:** Maintenance Guidelines

**Figure 6:** Product Specifications Table