Anisotropic high thermal conductive sheet based on our unique macromolecular design and high-temperature heat-treating technologies.

Features

- **High thermal conductivity in planar direction**
  
  More than three times as high as copper and six times as high as aluminum) “GRAPHINITY™” can spread heat in planar direction and can suppress a heat spot.

- **Light weight**
  
  Density about 2 g/cm³, thickness : 25 µm, 40 µm

- **Flexibility**
  
  Withstands repeated bending, R = 2 mm, 270°, more than 10000 times bending. Easy to manufacture such as punching and bending.

- **High electromagnetic shielding effect.**

- **Extremely low water absorption.**

GRAPHINITY™ dissipates heat spots by diffusing heat rapidly over the surface, thanks to high thermal conductivity of 1,500 W/mK in the planar direction.

Comparison of heat spreading ability between three materials of the same thickness

Sample size = 50×60×0.025 mm; heater size = 10×10×1.8 mm; heater output = 2.0 W

* Heater is connected to sample material by thermal conductive gel sheet of similar dimensions (10×10×0.3 mm; thermal conductivity = 6.5 W/mK). Images were captured from sample material side (opposite side to heater).
KANEKA Graphite Sheet
"GRAPHINITY™"

Typical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Units</th>
<th>Test methods</th>
<th>Typical values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>25µm</td>
</tr>
<tr>
<td>Thickness</td>
<td>µm</td>
<td>Micrometer</td>
<td>25</td>
</tr>
<tr>
<td>Thermal conductivity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In plane (XY axis)</td>
<td>W/mK</td>
<td>AC calorimeter method</td>
<td>1500</td>
</tr>
<tr>
<td>Thru plane (Z axis)</td>
<td>cm²/s</td>
<td>Laser flash method</td>
<td>5</td>
</tr>
<tr>
<td>Thermal diffusivity</td>
<td>g/cm³</td>
<td>AC calorimeter method</td>
<td>9.0</td>
</tr>
<tr>
<td>Specific gravity</td>
<td></td>
<td>Kaneka method</td>
<td>2.0</td>
</tr>
<tr>
<td>Tensile strength</td>
<td>MPa</td>
<td>ASTM-D-882</td>
<td>40</td>
</tr>
<tr>
<td>Bending</td>
<td>Cycles</td>
<td>JIS-C5016, R=2mm, 135°</td>
<td>&gt;10000</td>
</tr>
<tr>
<td>Electrical conductivity</td>
<td>S/cm</td>
<td>JIS K 7194</td>
<td>13000</td>
</tr>
<tr>
<td>Heat resistance</td>
<td>°C</td>
<td>TG-DTA</td>
<td>500</td>
</tr>
<tr>
<td>Water absorption</td>
<td>%</td>
<td>JIS K 7209</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

*These data are no guaranteed values but the typical values measured at our company.*

Example of graphite composite films

(A) INSULATION / GRAPHITE / ADHESIVE
- PET tape (10µm,30µm)
- GRAPHINITY™ (25µm, 40µm)
- Acrylic PSA* (10µm,30µm)
- Release tape

(B) ADHESIVE / GRAPHITE / ADHESIVE
- Release tape
- Acrylic PSA* (10µm,30µm)
- GRAPHINITY™ (25µm, 40µm)
- Acrylic PSA* (10µm,30µm)
- Release tape

(C) GRAPHITE / ADHESIVE
- GRAPHINITY™ (25µm, 40µm)
- Acrylic PSA* (10µm,30µm)
- Release tape

(D) INSULATION / GRAPHITE / INSULATION
- PET tape (10µm,30µm)
- GRAPHINITY™ (25µm, 40µm)
- PET tape (10µm,30µm)

(E) GRAPHITE / INSULATION
- PET tape (10µm,30µm)
- GRAPHINITY™ (25µm, 40µm)

*PSA: Pressure Sensitive Adhesive

In case you need other compositions, please don’t hesitate to contact us.

Example of GRAPHINITY™ sticker processing

*Caution: Values here were obtained from our laboratory and are not guaranteed.