# Phase change

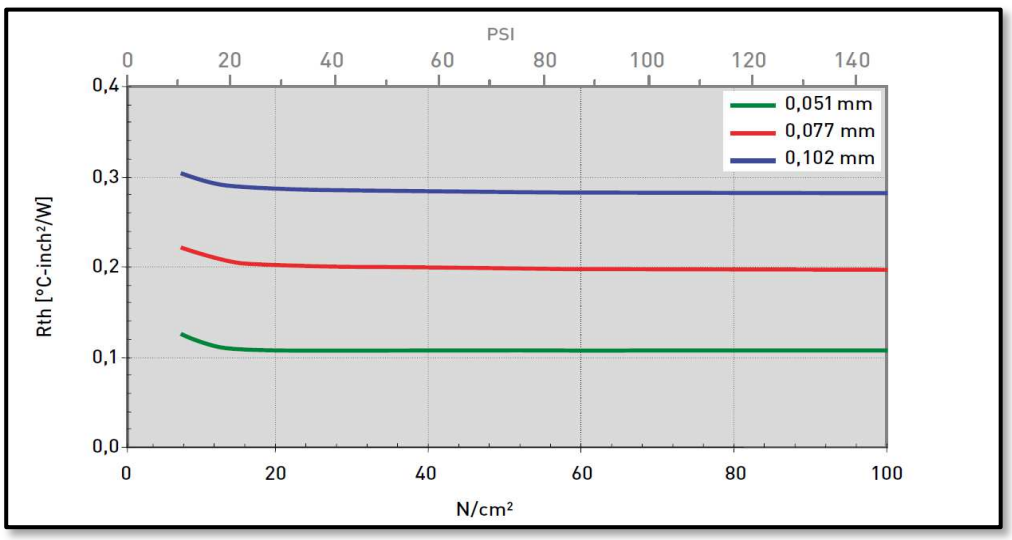
Our Thermal Foams, also known as TPC, are phase-changing thermo-conductive materials that solve heat dissipation problems. TPC_P_KA is a thermally conductive film with a Kapton®MT electrical insulator coated with a thermally conductive phase change compound on both sides where a low cooling requirement is required. Indeed, it is an excellent thermal conductor of 0.45W/ mK, with a good thermal resistance facilitating the transfer of heat and does not have electrical insulation. We can cut according to customer plan. All our mattresses are certified UL 94 in V0.

**Application areas**: Electronic components - Electric vehicles, 5G, Automatic control system, Mobile phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED motherboard, Power supply, Heat sink, LCD-TV, Laptop, PC, Telecommunication device, Wireless hub, DDR module ll, etc.

## Technical characteristics

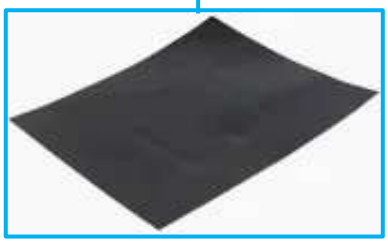
| Features | Unit | TPC_P_KA | | | |
|---|---|---|---|---|---|
| **Thickness** | µm | 51 | 77 | 102 | - |
| **Reinforcement** | - | Kapton®MT with phase change on both sides | | | |
| **Color** | - | Light Orange | | | |
| **Tensile strength** | kpsi | 20.0 | 22.0 | 23.0 | - |
| **Sizes** | mm | 610 x 394 or roll | | | |
| **Resistance @150Psi** | °C-inch²/W | 0.110 | 0.195 | 0.285 | - |
| **Resistance @30 Psi** | | 0.113 | 0.200 | 0.290 | - |
| **Resistance @10 Psi** | | 0.125 | 0.213 | 0.300 | - |
| **Devinall TH Thermal Conductivity** | W/mK | 0.45 | | | |
| **Temperature phase change** | °C | ca. 60 | | | |
| **Breakdown voltage** | kV / AC | 5.50 | 9.20 | 12.30 | - |
| **Volume resistance** | 0hm - cm | $1.0 \times 10^{14}$ | | | |
| **Contante dielectric** | @ 1 MHz | 4.2 | | | |

***The TPC_P_KA is available in 51/77/102µm thicknesses.***




The results were obtained under laboratory conditions and should be considered only as an indication. As AB2E has no control over its customers' equipment and many other factors, it is the user's responsibility to carry out its own tests to ensure that the product corresponds to its needs.

# Phase change



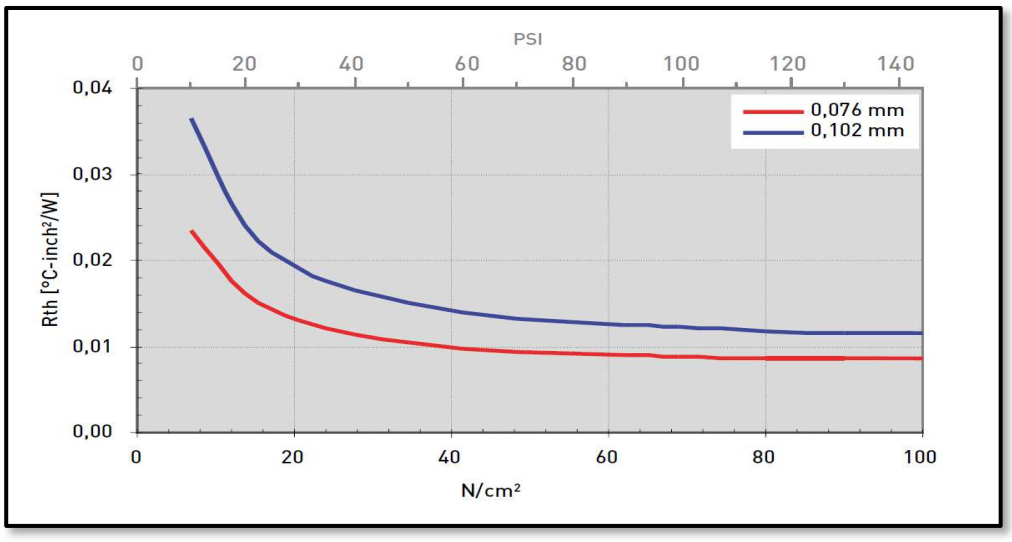
Our Thermal Foams, also known as TPC, are phase-changing thermo-conductive materials that solve heat dissipation problems. TPC_T_AL_CB is an aluminum film that is coated with a thermally conductive phase change on both sides where a low cooling requirement is required. Indeed, it is an excellent thermal conductor of 0.45W/ mK, with a good thermal resistance facilitating the transfer of heat and does not have electrical insulation. We can cut according to customer plan. All our mattresses are certified UL 94 in V0.

**Application areas**: Electronic components - Electric vehicles, 5G, Automatic control system, Mobile phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED motherboard, Power supply, Heat sink, LCD-TV, Laptop, PC, Telecommunication device, Wireless hub, DDR module ll, etc.

## Technical characteristics

| Features | Unit | TPC_T_AL_CB | | | |
|---|---|---|---|---|---|
| **Thickness** | µm | 76 | 102 | - | - |
| **Reinforcement** | - | Graphite aluminium with phase change on both sides | | | |
| **Color** | - | Black | | | |
| **Tensile strength** | kpsi | 20.0 | 22.0 | 23.0 | - |
| **Sizes** | mm | 445 x 500mm or roll | | | |
| **Resistance @150Psi** | °C-inch²/W | 0.009 | 0.011 | | - |
| **Resistance @30 Psi** | | 0.013 | 0.019 | | - |
| **Resistance @10 Psi** | | 0.022 | 0.037 | | - |
| **Devinall TH Thermal Conductivity** | W/mK | - | | | |
| **Temperature phase change** | °C | ca. 52 | | | |
| **Breakdown voltage** | kV / AC | - | | | |
| **Volume resistance** | 0hm - cm | - | | | |
| **Contante dielectric** | @ 1 MHz | - | | | |

***TPC_T_AL_CB is available in 76/102µm thicknesses.***

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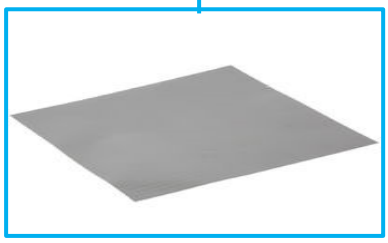
# Phase change



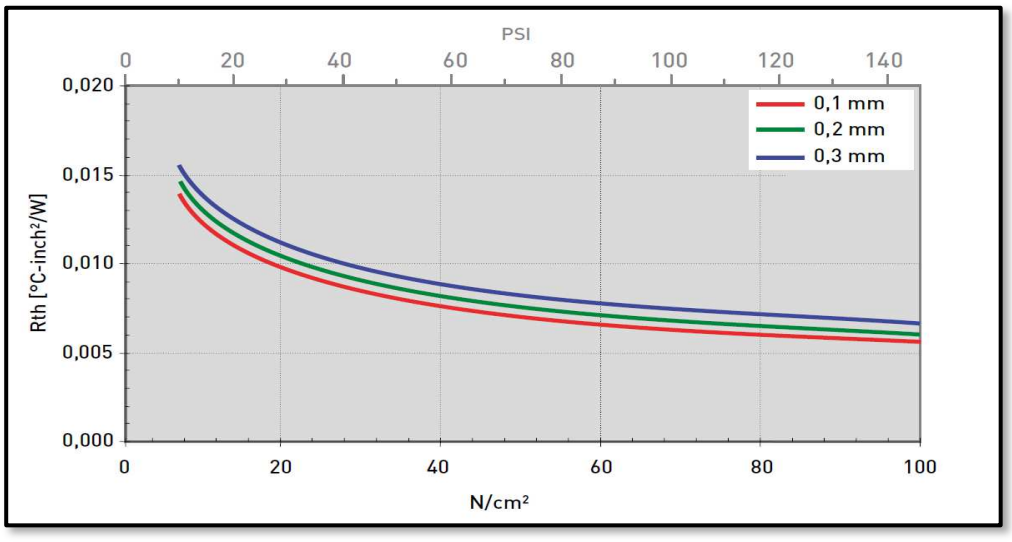
Our Thermal Foams, also known as TPC, are phase-changing thermo-conductive materials that solve heat dissipation problems. TPC_W_PC is a thermally conductive phase change film optimizing the thermal path, where a low cooling requirement is required. Indeed, it is an excellent thermal conductor of 0.45W/ mK, and has a good thermal resistance thus facilitating heat transfer and does not have electrical insulation. We can cut according to customer plan. All our mattresses are certified UL 94 in V0.

**Application areas**: Electronic components - Electric vehicles, 5G, Automatic control system, Mobile phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED motherboard, Power supply, Heat sink, LCD-TV, Laptop, PC, Telecommunication device, Wireless hub, DDR module ll, etc.

## Technical characteristics

| Features | Unit | TPC_W_PC | | | |
|---|---|---|---|---|---|
| **Thickness** | mm | 0.1 | 0.2 | 0.3 | - |
| **Reinforcement** | - | Phase change film | | | |
| **Color** | - | Gray | | | |
| **Tensile strength** | g/cm3 | 2.0 | | | |
| **Size** | mm | 305 x 152 | | | |
| **Resistance @150Psi** | °C-inch²/W | 0.0056 | 0.0061 | 0.0067 | - |
| **Resistance @30 Psi** | | 0.0097 | 0.0103 | 0.0111 | - |
| **Resistance @10 Psi** | | 0.0138 | 0.0148 | 0.0158 | - |
| **Devinall TH Thermal Conductivity** | W/mK | 3.5 | | | |
| **Temperature phase change** | °C | ca. 45 | | | |
| **Breakdown voltage** | kV / AC | - | | | |
| **Volume resistance** | 0hm - cm | - | | | |
| **Contante dielectric** | @ 1 MHz | - | | | |

***TPC_W_PC is available in 0.10/0.20/0.30/0.4mm thicknesses.***

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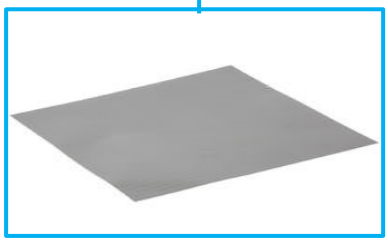
# Phase change

FT_TPC_W_PC_E_30

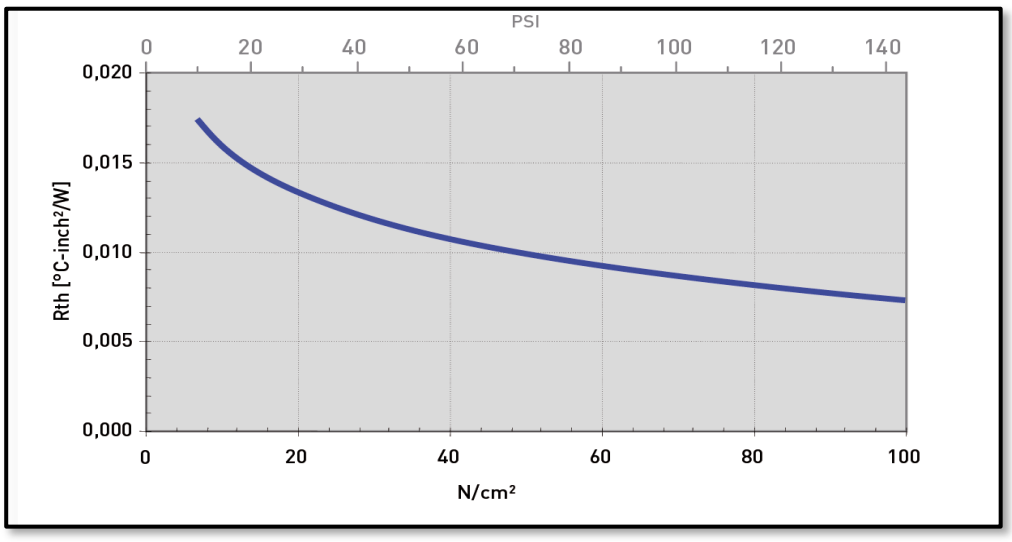


Our Thermal Foams, also known as TPC, are phase-changing thermo-conductive materials that solve heat dissipation problems. The TPC_W_PC_E is a thermally conductive thixotropic phase change compound optimizing the thermal path, where a low cooling requirement is required. Indeed, it is an excellent thermal conductor of 3.5W/ mK, and has a good thermal resistance thus facilitating heat transfer and does not have electrical insulation. We can cut according to customer plan. All our mattresses are certified UL 94 in V0.

**Application areas**: Electronic components - Electric vehicles, 5G, Automatic control system, Mobile phone, AIOT, HPC (High Performance Computing), Server, IC, CPU, MOS, LED motherboard, Power supply, Heat sink, LCD-TV, Laptop, PC, Telecommunication device, Wireless hub, DDR module ll, etc.

## Technical characteristics

| Fetures | Unit | TPC_W_PC_E | |
|---|---|---|---|
| **Specific gravity Dried or not** | g/cm3 | 1.8 @ RT / 1.7 @ RT | |
| **Reinforcement** | - | Dryable Phase Change Compound | |
| **Color** | - | Gray | |
| **Viscosity dried @ 10 rpm** | pas | 60 @ 60°C / 42 @ 80°C / 25 @ 100°C / 18 @ 120°C | |
| **Viscosity not dried @ 10 rpm** | | 96 @ RT | |
| **Resistance @150Psi** | °C-inch²/W | 0.007 | |
| **Resistance @30 Psi** | | 0.013 | |
| **Resistance @10 Psi** | | 0.017 | |
| **Thermal Conductivity** | W/mK | 3.5 | |
| **Drying temperature in mm** | Temps | @ 60°C 3.5h (0.05mm) | @ 125°C 8min (0.05mm) |
| | | @ 60°C 8h (0.15mm) | @ 125°C 15min (0.15mm) |
| | | @ 60°C 13h (0.25mm) | @ 125°C 20min (0.25mm) |
| **Working temperature** | °C | < 125 | |

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