



Intelligent Solutions for Thermally Conductive Thermoplastics

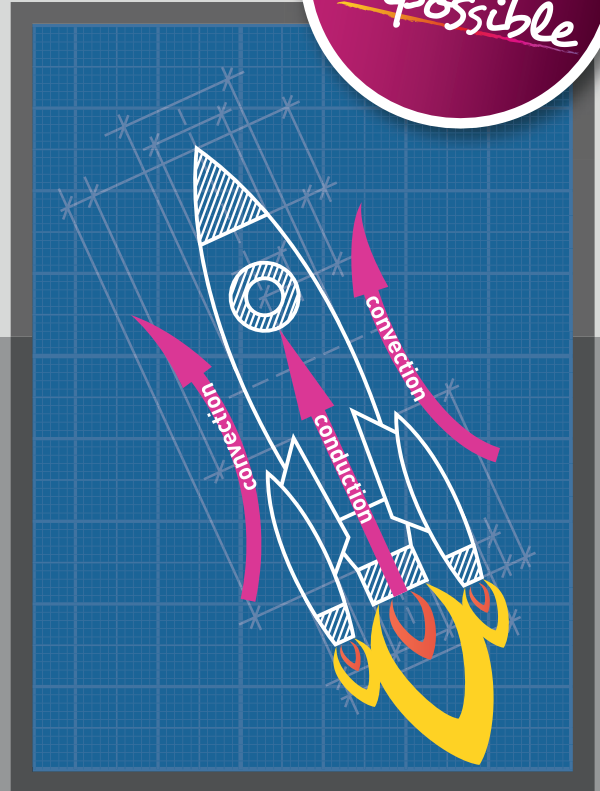


Why Thermally Conductive Thermoplastics?

- Electrically insulative or conductive options
- Special colors
- Design freedom
- Lightweight
- Cost advantage

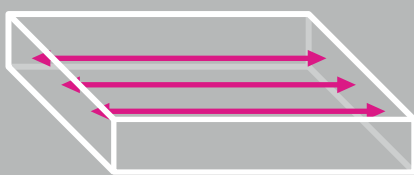
How to Replace Metal with Thermally Conductive Thermoplastics?

Although it is not the case in many applications, heat transfer speed is considered to be based solely on the thermal conductivity coefficient of the material. Heat transfer occurs in three different mechanisms as conduction, convection and radiation. In a heat sink application, conduction is the fastest, convection is the second and radiation is the slowest mechanism. Because radiation is the slowest, it is usually ignored. Furthermore as the conduction mechanism has the highest speed, convection creates a bottle neck for total heat transfer. Therefore to increase convection speed, part geometry plays a crucial role.

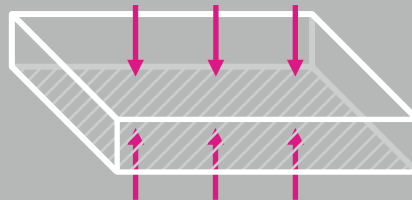


Thermal Conductivity Coefficients in Thermoplastics

In Plane Thermal Conductivity



Through Plane Thermal Conductivity

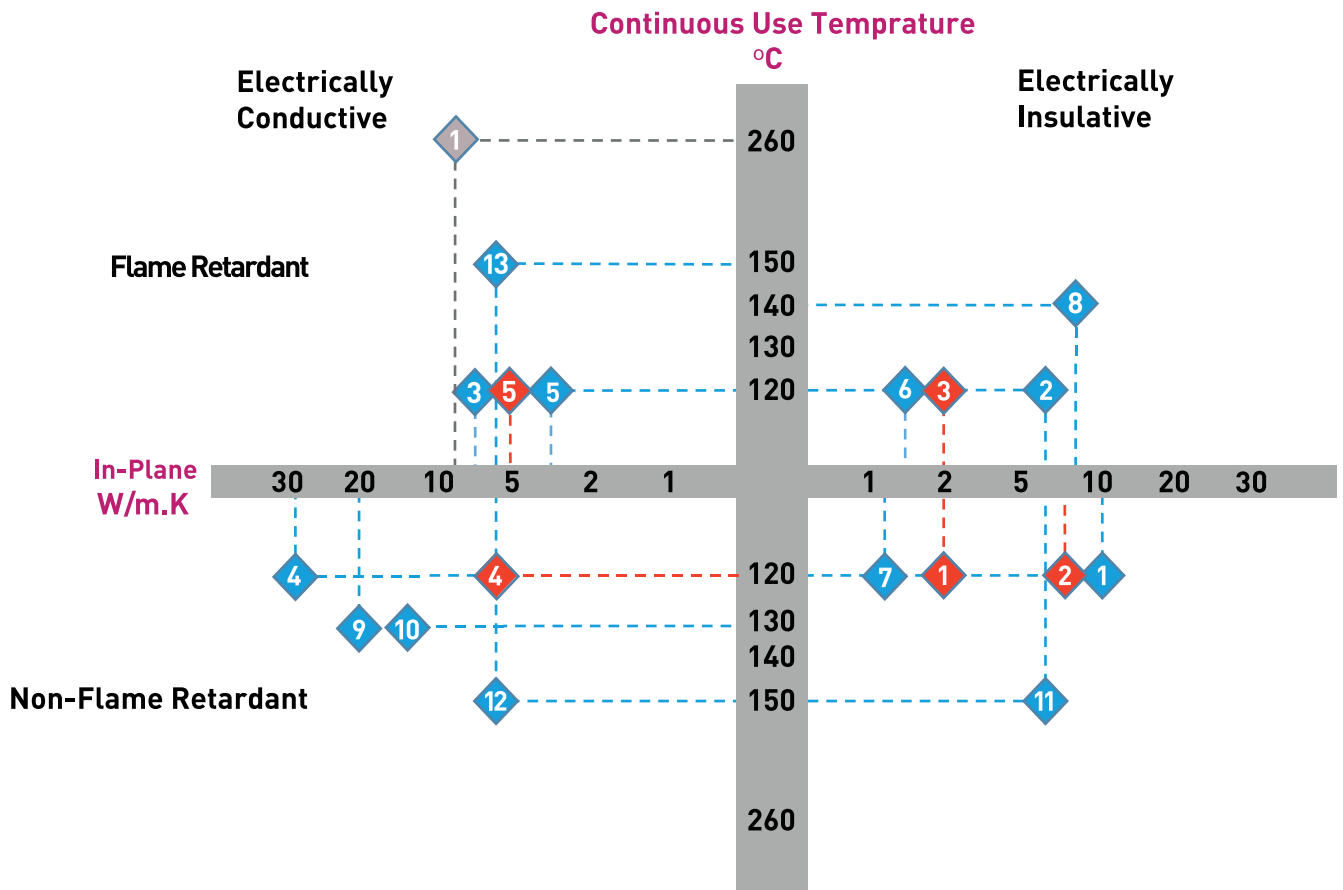


Usually length to width ratio of heat sink fin is very high and heat transfer through the length of heat sink fin is primarily depends on the in plane thermal conductivity of the material. Therefore overall heat transfer mechanism along the fin mostly depends on the in plane thermal conductivity of the material.

Types of Thermally Conductive Thermoplastics

- **Electrically & Thermally Conductive**
Static charge dissipation
- **Electrically Insulative & Thermally Conductive**
Custom color options





◆ Tecomid® PA / Tecomid® HT PPA

- | | |
|-----------------------|------------------------|
| 1- NB30 NL TC 2D | 7- NA30 NL TC 2A |
| 2- NB30 NL CZ70 2C | 8- NA30 NL CZ70 2D |
| 3- NB30 BK111 CZ70 1C | 9- NA30 BK111 TC 1G |
| 4- NA30 BK111 TC 1I | 10- NA30 BK111 TC 1E |
| 5- NB30 BK111 CZ70 1B | 11- NT40 NL TC 2C |
| 6- NB30 NL CZ70 2A | 12- NT40 BK111 TC 1C |
| | 13- NT40 BK111 CZ60 1C |

◆ Tecotek® PC

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|-----------------------|
| 1- PC60 NL TC 2B |
| 2- PC60 NL TC 2D |
| 3- PC60 NL CZ70 2B |
| 4- PC60 BK111 TC 1C |
| 5- PC60 BK111 CZ70 1C |

◆ Tecopeek® PEEK

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|---------------------|
| 1- PK40 BK111 TC 1D |
|---------------------|

How to Choose?

- Does application require electrical insulation?
- Is there any specific color requirement?
- What is the continuous working temperature?
- Does application require self-extinguishing properties?
- What is the working chemical, physical and environmental conditions?
- What are the mechanical properties needed from the material?



Daily Life



Extrusion



Conductive



Flame Retardant



Metal Replacement



Automotive



Thermally Conductive

