

## Thermal Conductivity Information for Low Density Foam ARPRO® EPP & ARPAK® EPE Low Density Grade Product Comparison

| Material                             | Density (pcf) | Temp. (°F) | 'k' value | 'R' value (per inch) |
|--------------------------------------|---------------|------------|-----------|----------------------|
| Expanded Polypropylene (EPP)         | 1.9           | 75         | 0.24      | 4.2                  |
| Expanded Polypropylene (EPP)         | 2.8           | 75         | 0.23      | 4.4                  |
| Expanded Polystyrene (EPS)           | 1.7           | 75         | 0.21      | 4.7                  |
| Porous Expanded Polypropylene (PEPP) | 2.8           | 75         | 0.25      | 4.0                  |
| Expanded Polystyrene (EPS)           | 2.8           | 75         | 0.20      | 4.9                  |
| Expanded Polyethylene (EPE)          | 1.9           | 75         | 0.26      | 3.9                  |
| Expanded Polyethylene (EPE)          | 2.8           | 75         | 0.25      | 4.0                  |
| Dytherm (EPS Copolymer)              | 6.0           | 75         | 0.21      | 4.7                  |
| Expanded Polyurethane (EPU)          | 5.0           | 100        | 0.25      | 4.0                  |
| Corkboard                            | 7.0           | 100        | 0.22      | 4.5                  |
| Rubber (Soft vulcanized)             | 70.0          | 85         | 0.80      | 1.3                  |
| Cellular Glass Block                 | 8.5           | 100        | 0.33      | 3.0                  |
| Wool (pure)                          | 5.6           | 85         | 0.21      | 4.7                  |
| Wood (White Pine)                    | 25.0          | 85         | 0.60      | 1.7                  |

Note: Thermal Conductivity tested per ASTM-D3575/C177  
Values expressed as: BTU/(hr-ft<sup>2</sup>-°F-ft) in US units

### Additional Information:

1. The other factor used in addition to Thermal Conductivity ('k') is the Thermal Conductance ('K'), which is measured in BTU/(ft<sup>2</sup>-hr-°F), and Thermal Resistance value ('R'), which is simply defined as 1/K, per inch of material thickness.
2. The thermal conductivity performance is directly related to the 'Mean Temperature' under which the product is tested. The value for Thermal Conductivity is defined as 'k', which is measured in BTU/(hr-ft<sup>2</sup>-°F-ft), but can be expressed in a variety of ways, depending on the intended application.
3. The thermal conductivity of different materials varies greatly. For most metals, the 'k' value is high, while for most insulating materials (such as ARPRO®), the 'k' value is very low. However, the variance in the 'k' values over a wide range of temperatures is high (or very significant) for metals, while it is low (or not typically significant) for insulating materials (such as ARPRO®).