

# PERSONAL COOLING WITH PHASE CHANGE MATERIALS



How phase change material increases comfort and safety through personal thermal regulation

## OVERVIEW

Phase change technology is widely used for personal heat management in cooling vests, regulating body temperature to keep an individual safe. The technology works by absorbing heat from the individual's body and providing cooling by reducing the body temperature of the person wearing it. The most common PCMs used for **cooling applications** has an approximate melt point of 18°C (64°F).

Phase change technology can be used within **warming applications** as well. During cold conditions PCMs will release heat, thus warming the user. The most common PCMs used for warming applications has an approximate melt point of 24°C (75°F) or 28°C (82°F).

## APPLICATIONS

**Common thermal vest environments include:**

- Operating rooms
- Construction
- Greenhouses
- Agriculture
- Athletics
- Amusement parks
- Outdoor venues

## HOW IT WORKS

### COOLING APPLICATIONS

- Place PCM pouches in a freezer, cooler, or submerge in ice water until contents are solid
- Insert pouches into vest or another garment
- Wear comfortably and repeat steps as needed (or use additional inserts for continuous relief)

### WARM APPLICATIONS

- Heat PCM pouches above the melt point until contents are liquid
- Insert pouches into vest or other application
- Wear comfortably and repeat steps as needed (or use additional inserts for continuous relief)



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# BENEFITS OF adaptek

POUCHES

- Provides cooling comfort and heat stress protection in high temperature environments and provides warming comfort and safety in low temperature environments
- Commonly used in hot and cold conditions under work gear, operating room heat, athletics, and other apparel
- Phase change material provides long-lasting, temperature-specific cooling and heating relief
- PCM is non-toxic, durable, reusable, lighter than water, and does not produce condensation

## CONFIGURATIONS

Adaptek pouches are available in varying fill options, custom sizes and configurations for your unique application. Our in-house R&D team can assist you to provide a specific solution for your size and temperature needs.

### STANDARD COOLING TEMPERATURES



6° C (42°F)



18° C (64°F)

### STANDARD WARMING TEMPERATURES



24° C (75°F)



28° C (82°F)



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