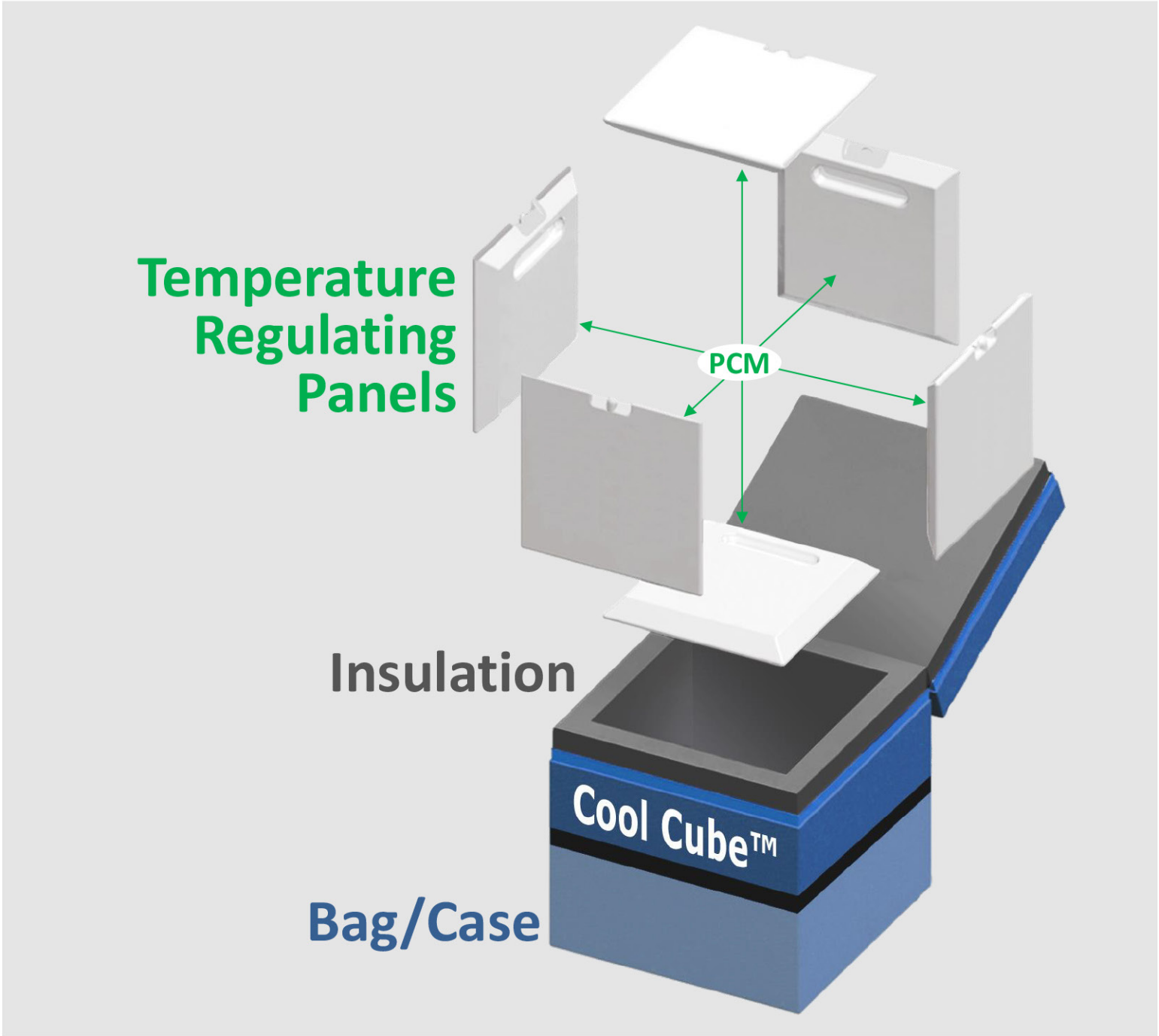
Cool Cube™ User Guide

A safe, easy container & pack-out system for temperature sensitive product.



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BAG/CASE VARIATIONS
User-Friendly Mobility

Cool Cube™ 03
shoulder strap | carry strap
clear pockets | double zipper

Pack-Out Space
5¾” x 5¾” x 5¾”
≈ 3 liters capacity
≈ 11 lbs. w/ panels

Cool Cube™ 08
shoulder strap | carry strap
clear pockets | double zipper

Pack-Out Space
11¼” x 6½” x 6½”
≈ 8 liters capacity
≈ 16 lbs. w/ panels

Cool Cube™ 28
towing handle | cord port
ext. pocket | Tru-Trac™ System

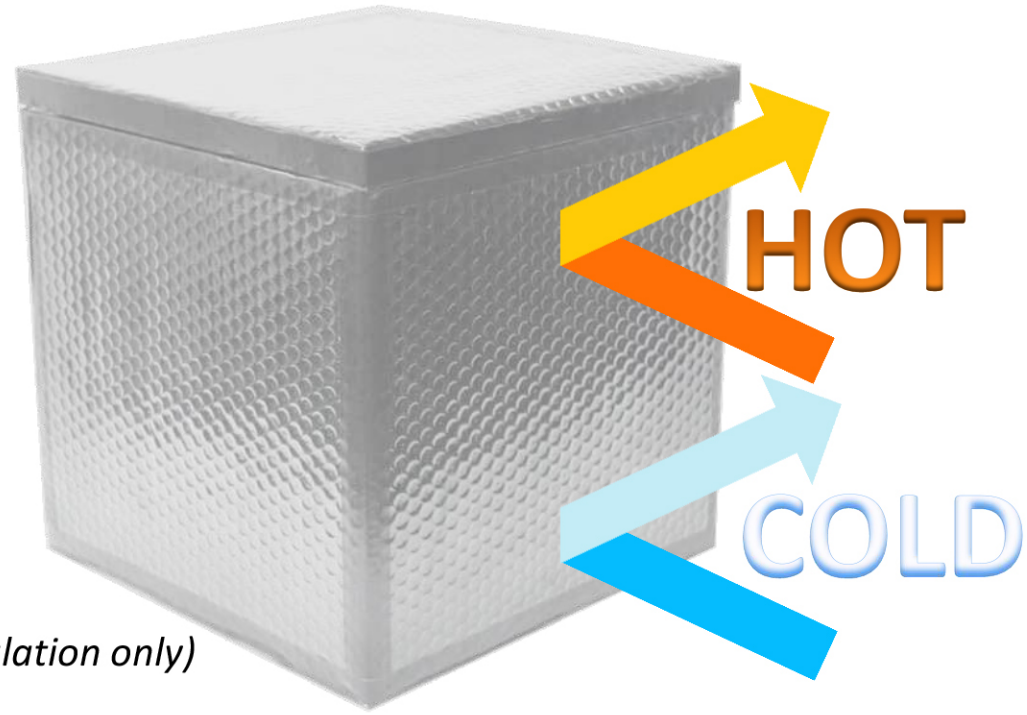
Pack-Out Space
12” x 12” x 12”
≈ 28 liters capacity
≈ 62 lbs. w/ panels

Cool Cube™ 96
towing strap | cord port
ext. pocket | swivel wheels

Pack-Out Space
18” x 18” x 18”
≈ 96 liters capacity
≈ 112 lbs. w/ panels

Dimensions and weight when utilizing six Series 4 PCM panels for pack-out; no pay-load.

TEMP-SHIELD™ INSULATION
The Protecting Barrier



(image of insulation only)

Temp-Shield™ Insulation is a preassembled, reinforced system of vacuum insulation panels (VIPs) custom fit into each bag/case. What makes this system so effective is that VIPs are five times more efficient than conventional insulators of a similar thickness…and it protects all six sides of the Cool Cube™.

Care: Avoid puncture. Clean using warm water and soap. Sanitization can be performed using an isopropyl alcohol and water mixture (typically 70/30) or other salt-based disinfectants. DO NOT autoclave, use solvents such as acetone, expose to extreme heat (above 75°C/167°F) or use abrasive cleaners.

Life Expectancy: The “recommended replacement date” indicated on the panels is not intended to serve as a hard expiration date or a mandatory replacement date. It is a date the VIP panel is estimated to have lost 5% of its overall effectiveness. This system is extremely effective as long as panels have an interior vacuum. The indicator of a compromised panel is a loss of rigidity. A loose skin, or non-rigid panel indicates vacuum loss which does affect performance. Inspect VIP base and lid surfaces periodically. Ultimately the user can continue to use the VIP as long as the performance is satisfactory.

PCM PANELS
The Temperature Regulators

Series 4 Panels
Blue Tab/Label
Refrigerated Temps
4.5°C/40.1°F

Fridge Product
- Vaccine
- Blood
- Medicine

Series 20M Panels
Black Tab/Label
Frozen Temps
-21.5°C/-6.7°F

Freezer Product
- VAR (varicella)
- MMRV/LZV
- FFP (plasma)

Series 22 Panels
Tan Tab/Label
Room Temps
21.5°C/70.7°F

Controlled Room Temp Product
- FFPE (tissue)
- Platelets
- Biospecimens

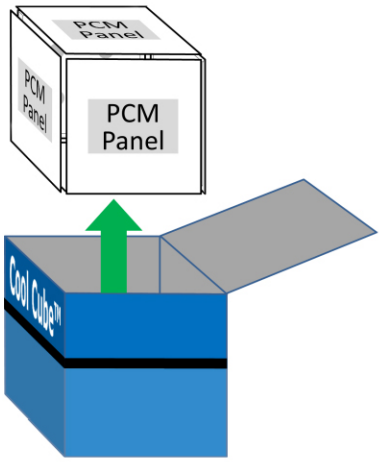
Cool Cube™ temperature regulating panels contain a phase change material (PCM) that is nontoxic, biodegradable and has similar characteristics to water. Unlike water, melting points are custom formulated to maximize the hold time within specific parameters.

Care: Clean using warm water and soap. Sanitization can be performed using an isopropyl alcohol and water mixture (typically 70/30) or other salt-based disinfectants. DO NOT autoclave, use solvents such as acetone, expose to extreme heat (above 75°C/167°F) or use abrasive cleaners.

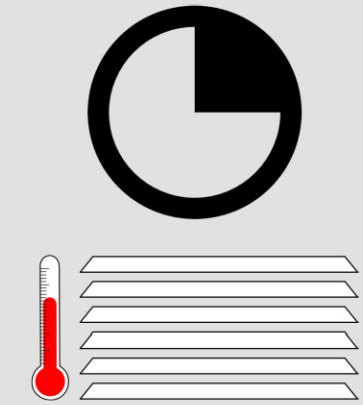
More About PCM: PCMs maintain a consistent temperature at the melting point due to the amount of energy needed to melt or freeze. Using engineered PCM within the desired temperature range will enable safe, long-lasting temperature control. See "series" specific details on reverse side for melting points and conditioning best practices. To learn more about PCM visit:

VeriCorMed.com/pcm

INSTRUCTIONS FOR USE



1 **Remove** PCM Panels



2 **Condition** PCM Panels

3 **Prep*** PCM Panels

CONDITIONING: Condition (store) the PCM panels based on planned usage of the Cool Cube™.

- To regulate a **cool temperature and prevent warming**, condition panels **below** the melting point to make PCM **solid**. *(most common)*
  - » Example A: For a Cool Cube™ to maintain 2-8°C in hot environments, condition Series 4 panels in a 2°C refrigerator for 24+ hours.
  - » Example B: For a Cool Cube™ to maintain -50° to -15°C in hot environments, condition Series 20M panels in a -25°C freezer for 24+ hours.
- To regulate a **warm temperature and prevent cooling**, condition panels **above** the melting point to make PCM **liquid**.
  - » Example C: For a Cool Cube™ to maintain 15°-25°C in cold environments, condition Series 22 panels in a 25°C climate chamber for 24+ hours.
  - » Example D: For a Cool Cube™ to maintain 2-8°C in sub-zero environments, condition Series 4 panels in a 8°C refrigerator for 24+ hours.

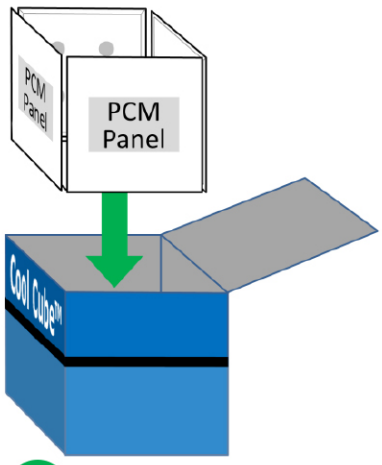
✓Tip: To shorten conditioning time, space out panels so that there is air flow around each; stacking increases conditioning time.

*Step 3 (Prep) is **NOT NEEDED** if panels are conditioned within the temperature parameters of the intended product.*

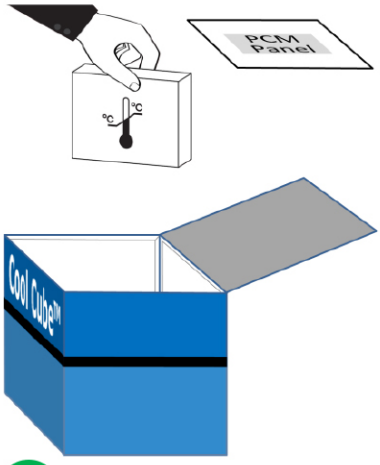
PREP *(*if applicable)*: If conditioned outside the intended temperature parameters, panels must warm-up or cool-down as needed.

- Variables play a factor in prepping (panel size, conditioning temp, pack-out temp, etc.), but the premise is that a panel will *quickly* warm-up or cool-down to its melting point. An infrared thermometer can assist in ensuring the panels reach a safe pack-out temp.
  - » Example E: For a Cool Cube™ to maintain 2-8°C, Series 4 panels conditioned at -5°C need to sit out at 21°C for approx. 20 minutes to warm up to 2°C.
  - » Example F: For a Cool Cube™ to maintain 15-25°C, Series 22 panels conditioned at 8°C need to sit out at 21°C for approx. 45 minutes to warm up to 15°C.

✓Tip: Lay panel(s) flat with the embossed side up during prep time.



4 **Assemble** PCM Panels



5 **Pack-Out** Product

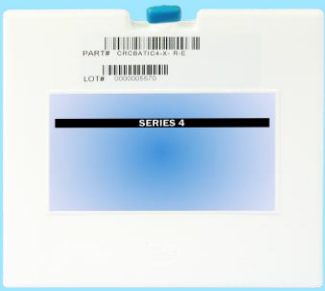
6 **Close** Bag/Case

PCM PANELS
Conditioning/Prep Tips

Series 4 blue tab/label

Melting Point: **4.5°C/40.1°F**

For: 2-8°C, 1-6°C or 1-10°C



Shake to estimate panel temperature.

Solid	Solid/Liquid Combination	Liquid
← Colder	4°C 39.2°F – 5°C 41.0°F	Warmer →

- If stored in a freezer, panels turn solid quickly but require the "prep" step.
- If stored in a refrigerator below 4°C, panels take longer to turn solid but require no "prep" step.

Series 20M black tab/label

Melting Point: **-21.5°C/-6.7°F**

For: -50° to -15°C

Shake to estimate panel temperature.

Solid	Solid/Liquid Combination	Liquid
← Colder	-23°C -9.4°F – -20°C -4.0°F	Warmer →

- The closer the freezer temperature is to the melting point (-21.5°C/-6.7°F), the longer it takes panels to turn solid.
- Typical time needed to turn panels solid is 24 hours at -25°C/-13°F.

Series 22 tan tab/label

Melting Point: **21.5°C/70.7°F**

For: 15-25°C or 20-24°C

Shake to estimate panel temperature.

Solid	Solid/Liquid Combination	Liquid
← Colder	21°C 69.8°F – 22°C 71.6°F	Warmer →

- The closer the conditioning temp is to the melting point (21.5°C/70.7°F), the longer it takes panels to turn solid/liquid.
- Using a climate chamber for conditioning will deliver best results.

PERFORMANCE DETAILS
Cool Cube™ + 6 PCM Panels

Tips

- *Ensure the product/payload is conditioned (at the desired temperature) before pack-out.*
- *Properly conditioned payload increases hold time.*
- *Using fewer panels increases capacity, but decreases weight and decreases hold time.*
- *The closer the ambient temperature is to the PCM melting point, the longer the hold time.*
- *Panels with a solid/liquid combination can be used but will decrease hold time.*

Hold Time: Refrigerated Temps

		 x6 panels	=	
				2-8°C / 1-6°C / 1-10°C
Cool Cube™ 03	+			65 hrs / 39 hrs / 70 hrs
Cool Cube™ 08	+			76 hrs / 53 hrs / 83 hrs
Cool Cube™ 28	+			103 hrs / 68 hrs / 108 hrs
Cool Cube™ 96	+			126 hrs / 112 hrs / 128 hrs

Hold Time: Frozen Temps

		 x6 panels	=	
				-50 to -15°C
Cool Cube™ 03	+			62 hrs
Cool Cube™ 08	+			60 hrs
Cool Cube™ 28	+			94 hrs
Cool Cube™ 96	+			139 hrs

Hold Time: Controlled Room Temps

		 x6 panels	=	
				15-25°C / 20-24°C
Cool Cube™ 03	+			91 hrs / 47 hrs
Cool Cube™ 08	+			83 hrs / 66 hrs
Cool Cube™ 28	+			79 hrs / 29 hrs
Cool Cube™ 96	+			132 hrs / 56 hrs

Times listed are based on lab-validated, thermal performance studies of interior temperatures during ISTA summer & winter profiles (w/ proper conditioning and assembly; no load). Actual performance times may vary.

Evolve Emergency Preparedness | Tel: 1-888-315-9007 | evolve-ep.com