

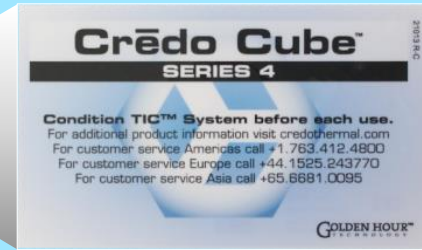
# Cool Cube™ Series 4 PCM Panels

Refrigerated Temps for vaccine, blood, medicine & more.

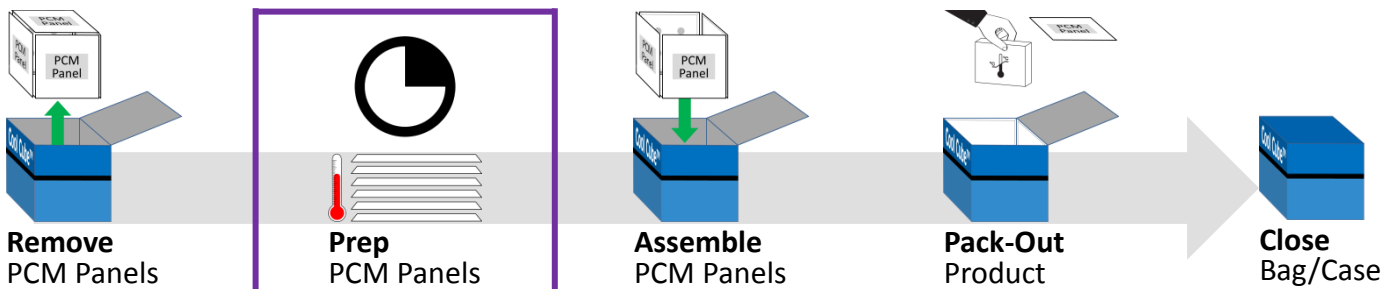
All Sizes



Blue Tab/Label




## Prep Method A: Freezer/Fridge Prep to keep product cold



**DO NOT assemble panels directly from a freezer, as they may be initially below 0°C.**

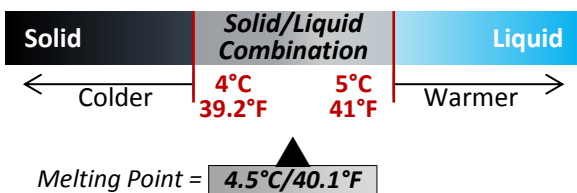
### Panel Prep Stages

- Place panels in a freezer until PCM (phase change material inside the panel) is solid (i.e. 2 hrs. @ -15°C). Shake to verify. 
  - Transfer panels into a fridge at least 3 hours before use. Panels may be stored in the fridge until needed for assembly or the PCM melts.  
*If a refrigerator maintains 4°C or below, the PCM within the panels will not melt (melting point is 4.5°C), keeping the PCM solid indefinitely until pack-out. If the refrigerator maintains 5°C or above, periodically check for melting and restart prep to ensure best performance.*
- ❖ Before assembly, shake panels to verify PCM is solid. If liquid can be heard, panels may be used but hold times will decrease.



### Cool Cube™ Series 4 PCM Panel Shake Test

Thermal Properties of Panels



### ISTA 7D Thermal Performance Study Temperature Hold Times

	Refrigerated Temps	2-8°C	1-6°C	1-10°C
Cool Cube™ 03		65 hrs	39 hrs	70 hrs
Cool Cube™ 08	<b>Series 4</b>	76 hrs	53 hrs	83 hrs
Cool Cube™ 28	<b>Blue Tab/Label</b>	103 hrs	68 hrs	108 hrs
Cool Cube™ 96	<b>(6-panel pack-out)</b>	126 hrs	112 hrs	128 hrs

Times listed are based on lab-validated, ISTA 7D summer (hot conditions) and winter (cold conditions) 24-hour cycled shipping profiles without the additional thermal mass of a payload. Actual performance times may vary.

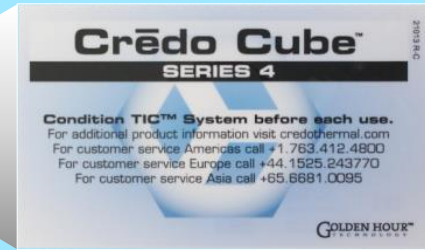
# Cool Cube™ Series 4 PCM Panels

Refrigerated Temps for vaccine, blood, medicine & more.

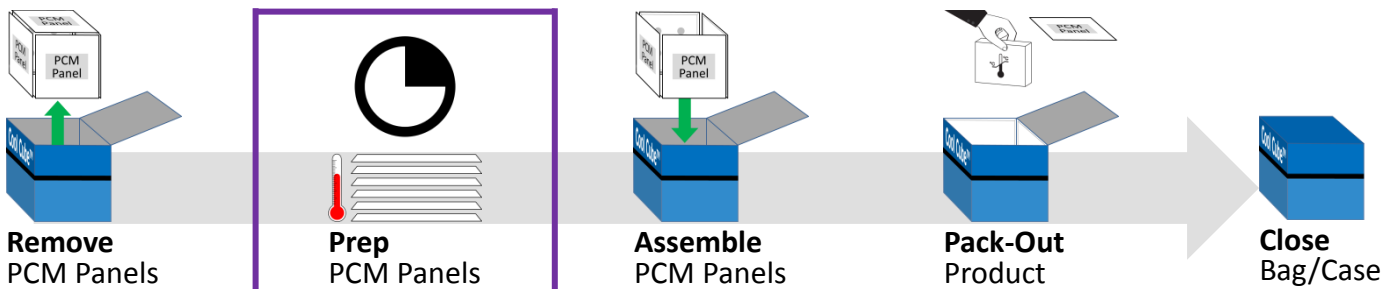
All Sizes



Blue Tab/Label




## Prep Method B: Fridge ONLY Prep to keep product cold



This prep is for when the Cool Cube™ will be used for **shorter durations**.

### Panel Prep

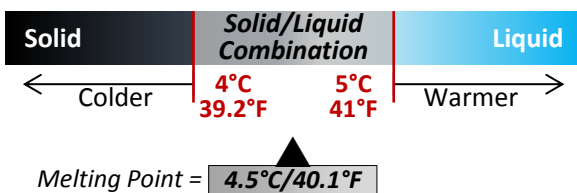
1. Store panels in a refrigerator for a minimum of 24 hours before use.  Shake to check the state of PCM (phase change material inside the panel).
  - If *liquid*...panel is at the fridge temp but above 5°C; anticipate shorter hold times.
  - If *solid*...panel is at the fridge temp but below 4°C; ideal for maximum hold times.
  - If *solid/liquid combination*...panel is at the fridge temp of 4-5°C; monitor time/temp.

*In a refrigerator that maintains 4°C or below, PCM will be solid (ideal for keeping product cold in warm/hot conditions). In a refrigerator that maintains 5°C or above, PCM will be liquid. Although panels are liquid, the PCM inside is at the temperature of storage environment after 3 hours (i.e. stored in a 6°C fridge, the PCM panels are at 6°C). Assembling the Cool Cube™ with liquid panels (additional thermal mass) will help keep product at their temperature, just for a shorter amount of time. Monitor Cool Cube™ temperature closely.*



### Cool Cube™ Series 4 PCM Panel Shake Test

Thermal Properties of Panels



### ISTA 7D Thermal Performance Study Temperature Hold Times

	Refrigerated Temps	2-8°C	1-6°C	1-10°C
Cool Cube™ 03		65 hrs	39 hrs	70 hrs
Cool Cube™ 08	Series 4	76 hrs	53 hrs	83 hrs
Cool Cube™ 28	Blue Tab/Label	103 hrs	68 hrs	108 hrs
Cool Cube™ 96	(6-panel pack-out)	126 hrs	112 hrs	128 hrs

*Times listed are based on lab-validated, ISTA 7D summer (hot conditions) and winter (cold conditions) 24-hour cycled shipping profiles without the additional thermal mass of a payload. Actual performance times may vary.*

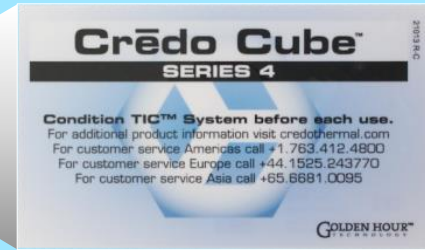
# Cool Cube™ Series 4 PCM Panels

Refrigerated Temps for vaccine, blood, medicine & more.

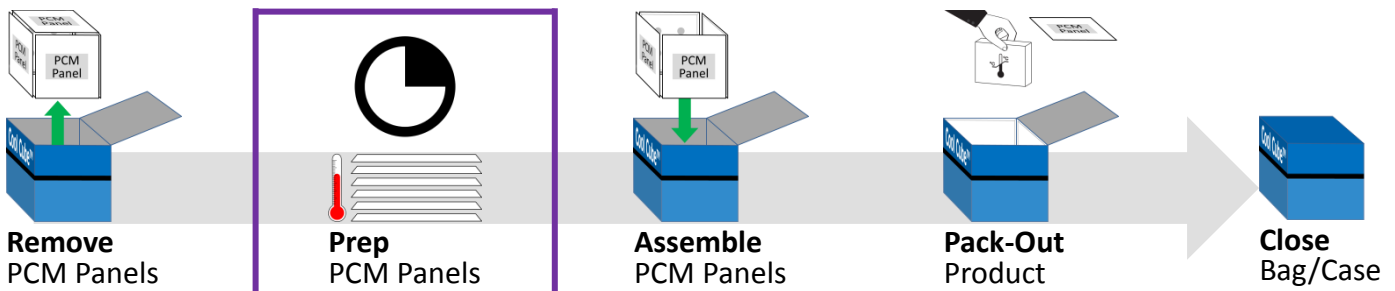
All Sizes



Blue Tab/Label



## Prep Method C: Freezer/Room Prep to keep product cold



**DO NOT assemble panels directly from a freezer, as they may be initially below 0°C.**

### Panel Prep Stages

1. Store panels in a freezer so PCM (phase change material inside the panel) is solid (i.e. 2 hrs. @ -15°C). Shake to verify.
2. Transfer panels into a room temperature environment just prior to use (recommended times below) to allow PCM inside to rise to the appropriate operating temperature.

Recommended times based on a 22°C room temperature (by panel size):

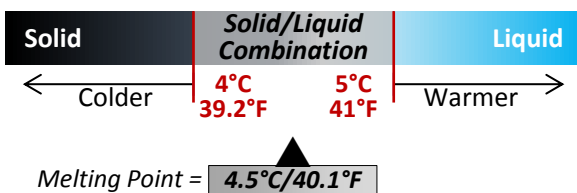
6 x 6 = 25 minutes	12 x 12 = 35 minutes
6.5 x 6.5 = 30 minutes	18 x 18 = 40 minutes
6.5 x 11 = 30 minutes	

PCM panels coming out of a freezer into a room temperature environment may develop frost and/or condensate on the outside. After the frost turns to condensate, it is above 0°C. As soon as any liquid is heard inside the panel, it is at or above 4.5°C.



### Cool Cube™ Series 4 PCM Panel Shake Test

Thermal Properties of Panels



### ISTA 7D Thermal Performance Study Temperature Hold Times

	Refrigerated Temps	2-8°C	1-6°C	1-10°C
Cool Cube™ 03		65 hrs	39 hrs	70 hrs
Cool Cube™ 08	Series 4	76 hrs	53 hrs	83 hrs
Cool Cube™ 28	Blue Tab/Label	103 hrs	68 hrs	108 hrs
Cool Cube™ 96	(6-panel pack-out)	126 hrs	112 hrs	128 hrs

Times listed are based on lab-validated, ISTA 7D summer (hot conditions) and winter (cold conditions) 24-hour cycled shipping profiles without the additional thermal mass of a payload. Actual performance times may vary.

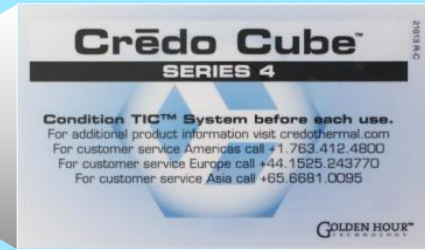
# Cool Cube™ Series 4 PCM Panels

Refrigerated Temps for vaccine, blood, medicine & more.

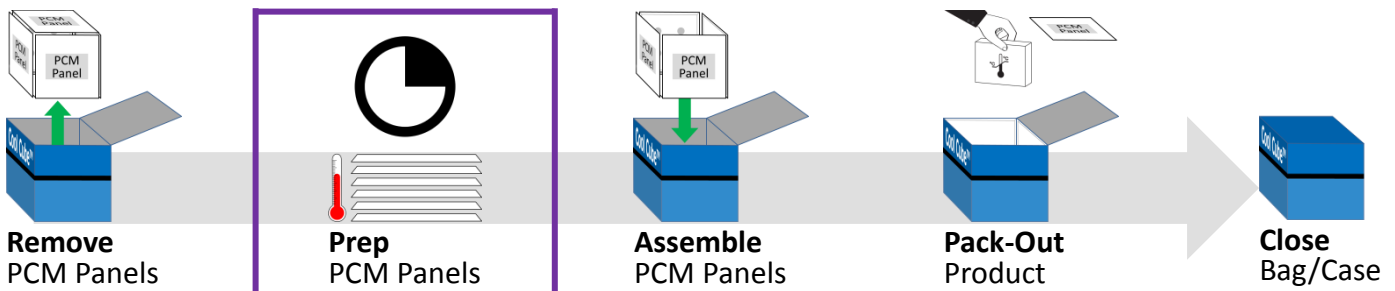
All Sizes



Blue Tab/Label




## Prep Method D: Fridge Prep to prevent freezing



**DO NOT assemble panels directly from a room temp, as they may be initially above 8°C.**

### Panel Prep

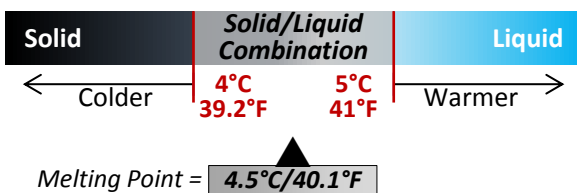
- Place panels in a fridge between 5° and 8°C for at least 24 hours before use so PCM (phase change material inside the panel) is liquid. Shake to verify.   
*Panels may be stored in the fridge until needed for assembly or the PCM solidifies. If a refrigerator maintains 5°C or above, the PCM within the panels will not get solid (solidifying point is 4.5°C), keeping the PCM liquid indefinitely until pack-out. Liquid panels will protect the product from freezing until the PCM inside becomes completely solid.*

- ❖ Before assembly, shake panels to estimate the state of the PCM. Liquid PCM panels will prevent product from freezing (at refrigerator temps) in extreme cold the longest. Slushy or solid PCM panels may be used but hold times will decrease.



### Cool Cube™ Series 4 PCM Panel Shake Test

Thermal Properties of Panels



### ISTA 7D Thermal Performance Study Temperature Hold Times

	Refrigerated Temps	2-8°C	1-6°C	1-10°C
Cool Cube™ 03		65 hrs	39 hrs	70 hrs
Cool Cube™ 08	Series 4	76 hrs	53 hrs	83 hrs
Cool Cube™ 28	Blue Tab/Label	103 hrs	68 hrs	108 hrs
Cool Cube™ 96	(6-panel pack-out)	126 hrs	112 hrs	128 hrs

*Times listed are based on lab-validated, ISTA 7D summer (hot conditions) and winter (cold conditions) 24-hour cycled shipping profiles without the additional thermal mass of a payload. Actual performance times may vary.*

# Cool Cube™

## Best Practices

Call for  
Technical Support  
(866) 469-6019



- Always prep the PCM panels before use according to one of the described methods provided by VeriCor.
- Ensure all components are clean and free of damage.
- During prep, enable ample air flow around all panel sides.
  - Use spacers (pencils) or racks.....customer solution→
- Lay panels flat when “freezing”.
- Freeze/melting times vary depending on number of panels being prepped and equipment specifications being used.
- Assemble using all six panels for maximum hold time.
  - Using less panels does not change the holding temperature but does decrease hold time.
- Panels are reusable (10,000+ cycles)
  - End-of-life disposal: Panels use a plastic #2, typically recycled by businesses/communities. PCM is nontoxic and readily biodegradable.
- Use a calibrated data logger or other temperature monitoring device to observe internal temperature.
- Avoid unnecessary opening of the Cool Cube™ after loading payload. Opening of the Cool Cube™ will decrease hold time.
- An infrared temperature thermometer can assist in ensuring the panels reach a safe pack-out temperature (good for finding out the approximate temperature of each panel).
- The farther the ambient temperatures are from the melting point, the quicker PCM will change states (solidify/liquefy).

