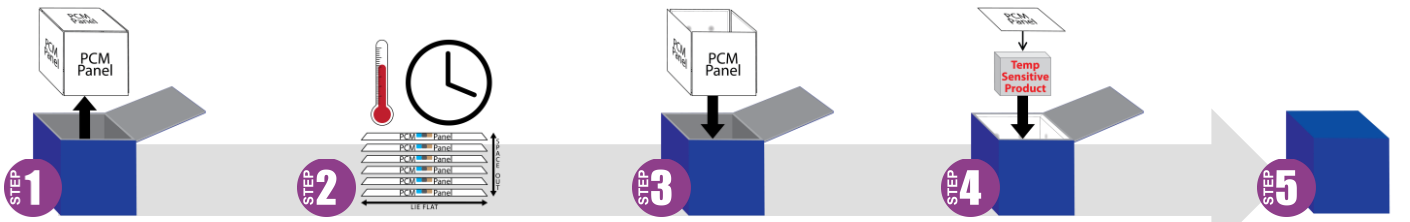
# Cool Cube™
# Best Practices

*Call for Technical Support*
***(608) 526-6901***

- ❑ Prep the PCM (phase change material) panels before use according to one of the described methods provided by VeriCor.
- ❑ Ensure all components are clean and free of damage.
- ❑ Lay panels flat when turning them solid (to disperse liquid throughout the panel).
- ❑ Enable ample air flow around all panel sides.
  - Use spacers (pencils) or racks. →

- ❑ Freezing/melting times vary depending on number of panels being prepped and equipment being used.
- ❑ Assemble using all six panels for maximum hold time.
  - Using less panels does not change the holding temperature, but does decrease the hold time.
- ❑ Panels are reusable (10,000+ cycles).
  - End-of-life disposal: Panels are 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).




**Remove** PCM Panels

**Prep** PCM Panels

**Various methods based on type of panel, equipment available & purpose.**

**Assemble** PCM Panels

**Pack-Out** Product

**Close** Bag/Case

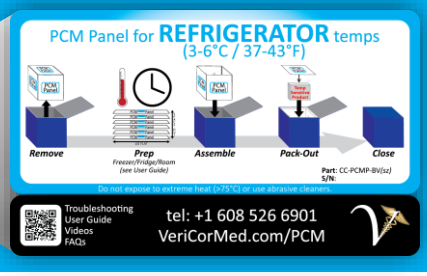
VERICOR LLC

# Cool Cube™ Refrigerator PCM Panels

for vaccine, blood, medicine & more.

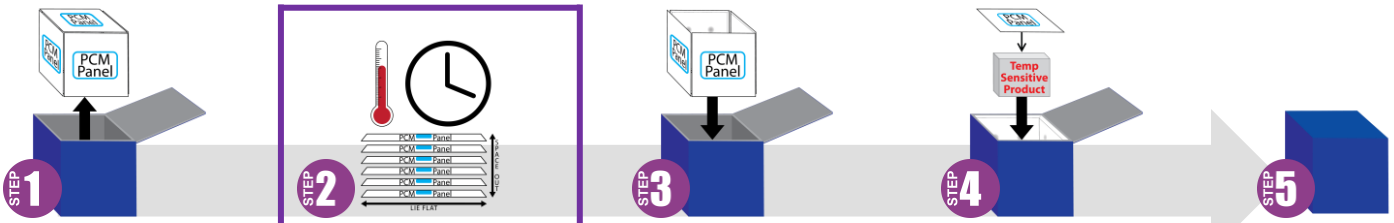
*All Sizes*

**Blue Tab/Label**




**Video**

## 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

**2.1 Lay panels flat in a freezer** until all the PCM (phase change material inside the panel) turns solid. At -15°C/5°F the PCM will solidify in a couple hours.

**2.2 Transfer panels into a room temperature environment just before use** to allow the PCM inside to rise to the appropriate operating temperature. Approximate times:

"03" size = 25 minutes
"08" size = 30 minutes

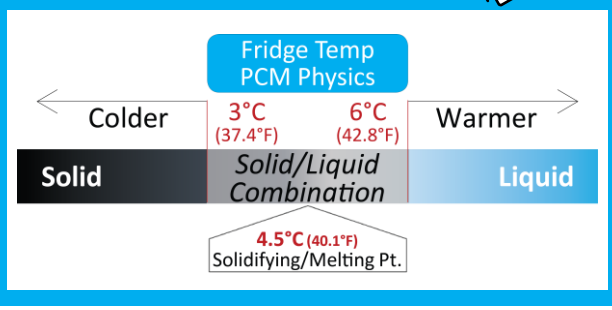
*Times based on a 22°C/72°F room.*

"28" size = 35 minutes
"96" size = 40 minutes

**2.3 Wipe off condensate.** After frost turns to condensate, the panel is above 0°C.

**2.4 Shake panels to verify the PCM is solid.** If a little liquid is heard, it is at 4.5°C. If there is a lot of liquid, restart at step 2.1 to ensure the longest hold time. Using liquid PCM or panels with a solid/liquid combination decreases the hold time.

### PCM Panel Shake Test




### ISTA 7D Thermal Performance Study

Lab-Qualified Hold Times When Starting with Solid PCM

| | Qualified Temps: | 2-8°C | 1-6°C | 1-10°C |
|---|---|---|---|---|
| Cool Cube™ 03 | Utilizing Six (6) | 65 hrs | 39 hrs | 70 hrs |
| Cool Cube™ 08 | Refrigerator Temp | 76 hrs | 53 hrs | 83 hrs |
| Cool Cube™ 28 | PCM Panels | 103 hrs | 68 hrs | 108 hrs |
| Cool Cube™ 96 | (Blue Tab/Label) | 126 hrs | 112 hrs | 128 hrs |

*Times listed are based on lab-validated, 24-hour cycles of a summer profile (hot ambient temperatures) without the additional thermal mass of a payload, which if conditioned properly, will improve hold times. Actual performance times may vary.*