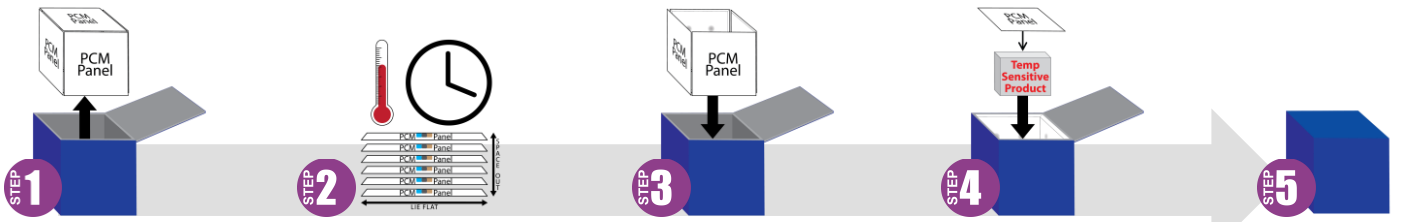
Cool Cube™
Best Practices

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

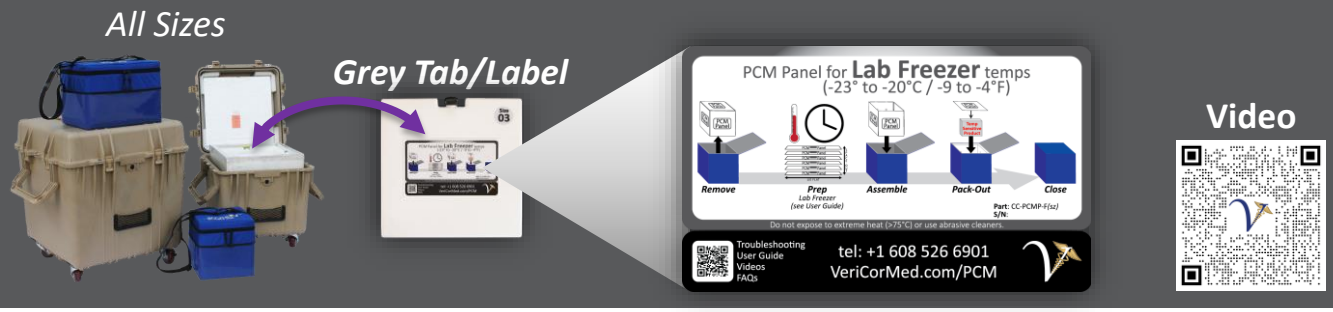
Pack-Out Product

Close Bag/Case

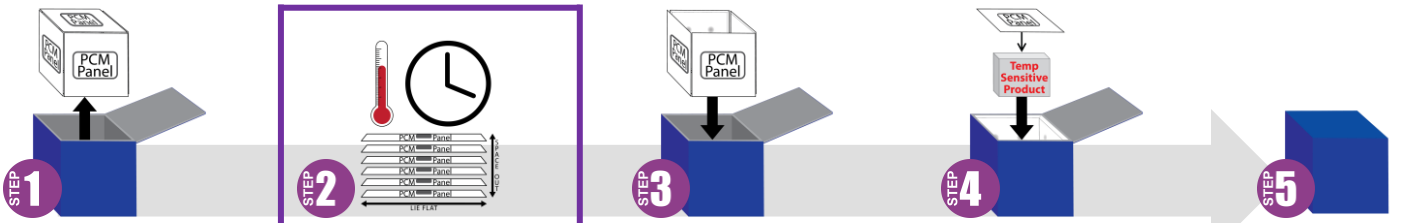
VERICOR LLC

Cool Cube™ Lab Freezer PCM Panels

for varicella, MMRV, Zoster, FFP & more.



Prep Method C: **Standard Freezer** Prep to keep product frozen



Remove PCM Panels | **Prep** PCM Panels | **Assemble** PCM Panels | **Pack-Out** Product | **Close** Bag/Case

Panel Prep

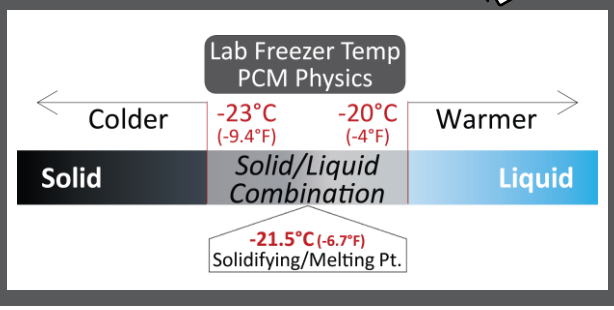
2.1 Store panels in a standard freezer (turned down to its lowest setting) for a minimum of 24 hours before use. Unless the freezer is always below -23°C, the PCM (phase change material inside the panel) will never turn completely solid, but short-term use is still possible.*

** Although PCM is liquid, it is at the temperature of storage environment after 3 hours. For instance, panels stored in a -18°C freezer are at -18°C even PCM is liquid. Assembling the Cool Cube™ with this additional thermal mass will keep product frozen, just for a shorter amount of time than the lab-validated results.*

2.2 Shake panels to check the state of the PCM (phase change material inside the panel).

- If *liquid*…panel is at the freezer temp but above -20°C; anticipate shorter hold times.
- If *solid*…panel is at the freezer temp but below -23°C; ideal for maximum hold times.
- If *solid/liquid combination*…panel is at the freezer temp between -23 and -20°C; monitor longer use periods.

PCM Panel Shake Test



ISTA 7D Thermal Performance Study

Lab-Qualified Hold Times When Starting with Solid PCM

	Qualified Temp:	-50 to -15°C
Cool Cube™ 03	**Utilizing Six (6)**	62 hrs
Cool Cube™ 08	**Lab Freezer Temp**	60 hrs
Cool Cube™ 28	**PCM Panels**	94 hrs
Cool Cube™ 96	(Grey Tab/Label)	139 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.