

## Product Overview

CoolGuard™ Advance systems are our range of high performance single-use shipping systems, utilizing advanced insulation and phase change materials.

CoolGuard Advance systems are designed to ensure maximum protection of your valuable payload through the use of standardized components with simple, error free assembly.

## CoolGuard™ Advance Benefits

CoolGuard Advance systems achieve industry leading payload to external volume ratios, reducing storage and distribution costs.

CoolGuard Advance systems are pre-qualified to a range of industry recognized ambient profiles, providing peace of mind when shipping to challenging destinations.

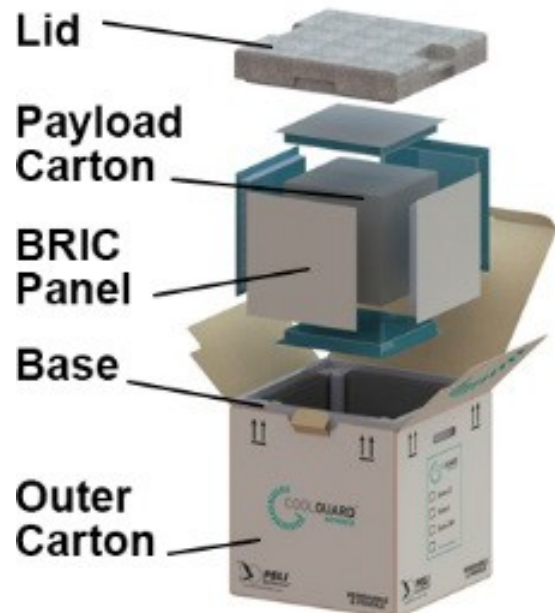
CoolGuard BRICS utilizing PCM (Phase Change Material) offers industry leading thermal protection to your valuable, temperature sensitive products.

Optimal thermal protection is provided through the use of high performance Vacuum Insulation Panels, coupled with advanced PCM technology.

By using single temperature PCM panels that load into pre-defined locations, the packing process is simplified.

Moisture resistant materials protect your product and labelling from damage that can be caused by condensation.

## System Diagram



## Ensuring Consistent Performance

Always prepare PCM BRICS correctly before use. Please refer to the instructions provided in this User Guide (Page 2).

Ensure all components are clean and free from damage. Please refer to the instructions on how to inspect the Vacuum Insulation Panels (Page 6).

After packing, avoid unnecessary opening of the container.

In-Transit Refrigerated Hold can be achieved at any point during transit by placing the shipper into a -18°C Temperature cold store, pausing phase change within the shipper, resulting in longer, temperature compliant shipments.

## Preparing your CoolGuard™ BRICS

### **Method 1, Freezer CoolGuard PCM Conditioning**

Place the PCM BRICS into a -40°C freezer or below for a minimum of 24 hours. Ensure that the PCM BRICS are laid flat. Freeze time may vary depending on the amount of panels being frozen and equipment specifications. The PCM BRICS may be conditioned in a freezer as warm as -30°C but the conditioning time must be increased.

### **Method 2, Dry Ice CoolGuard PCM Conditioning**

Pelletized dry ice must be used to condition the PCM BRICS properly. Do not use dry ice blocks. For best results, condition the PCM BRICS in their grouping carton, this prevents possible damage to the plastic film through direct contact with the dry ice.

Steps for Conditioning:

1. Obtain an insulated container that will allow the grouping carton of PCM BRICS to sit flat within it. We have a broad range of suitable containers, please contact us for details.
2. Pour a layer of pelletized dry on the bottom of the insulated container.
3. Place the grouping carton of PCM BRICS into the insulated container on top of the layer of dry ice.
4. Pour pelletized dry ice into the insulated container such that it completely covers the grouping carton of PCM BRICS.
5. Close the insulated container and allow the grouping carton of PCM BRICS to condition for at least 48 hours (the insulated container should be in a room temperature environment for best results).
6. The grouping carton of PCM BRICS is ready to use.

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## Packing your CoolGuard™ Advance System

### Pack-Out Preparation

Perform one of the Preparation Methods described on Page 2. **Take care when handling the PCM BRICS as they will be extremely cold and fragile.**

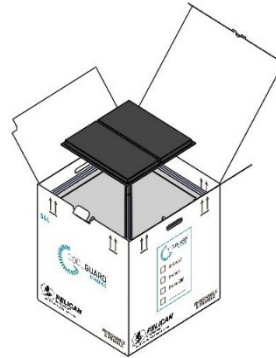
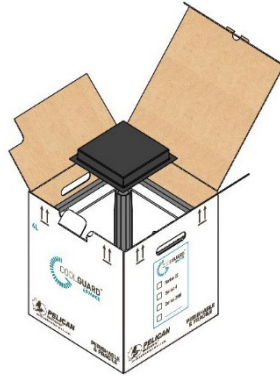
(Note: CoolGuard Advance 4L, 12L and 28L system use 6x PCM BRICS, 56L and 96L system use 12x PCM BRICS)

### Assemble CoolGuard PCM BRICS into System

Insert PCM BRICS base panel(s) into the CoolGuard Advance system with the printed side facing down:

56L & 96L

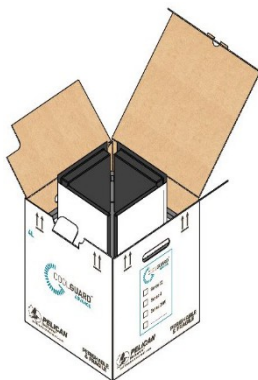
4L, 12L & 28L



Insert PCM BRIC side panels into the EPS molding, ensure the printed side faces outwards:

56L & 96L

4L, 12L & 28L



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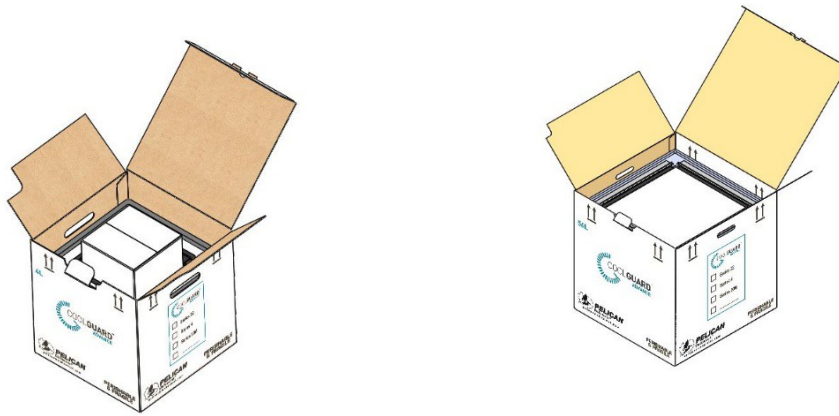
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## Packing your CoolGuard™ Advance System

### Load Payload

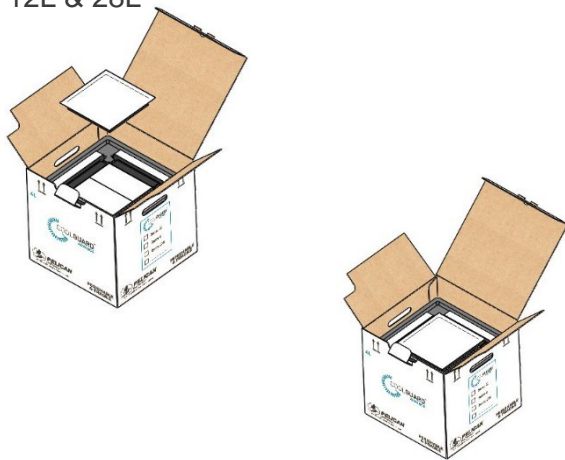
Ensure payload (product to be shipped) is conditioned at  $-18^{\circ}\text{C}$  (or below) before loading into the Payload Carton. Add void filler material to any empty payload space to prevent contents from shifting during transit, it is recommended that these materials are stored at  $-18^{\circ}\text{C}$  (or below). Do not over pack the Payload Carton.

Load Inner Carton into the assembled CoolGuard Advance system:

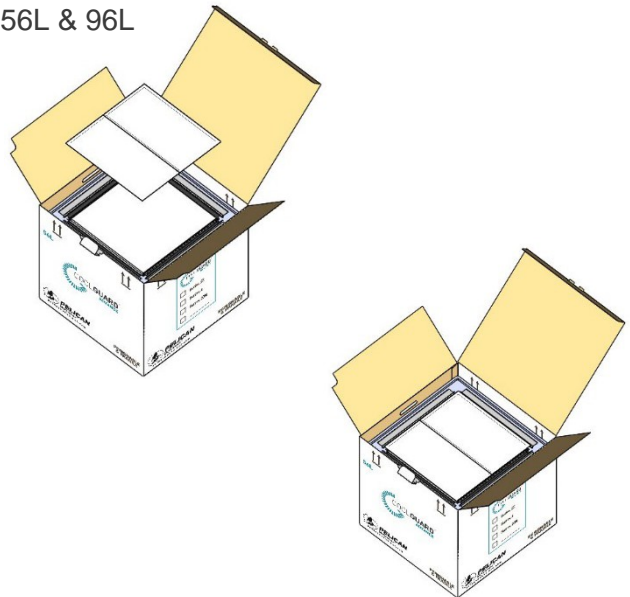


Place the top PCM BRIC(s) onto the Inner Carton, ensuring the panel lies flat and central with the printed side facing up:

4L, 12L & 28L



56L & 96L



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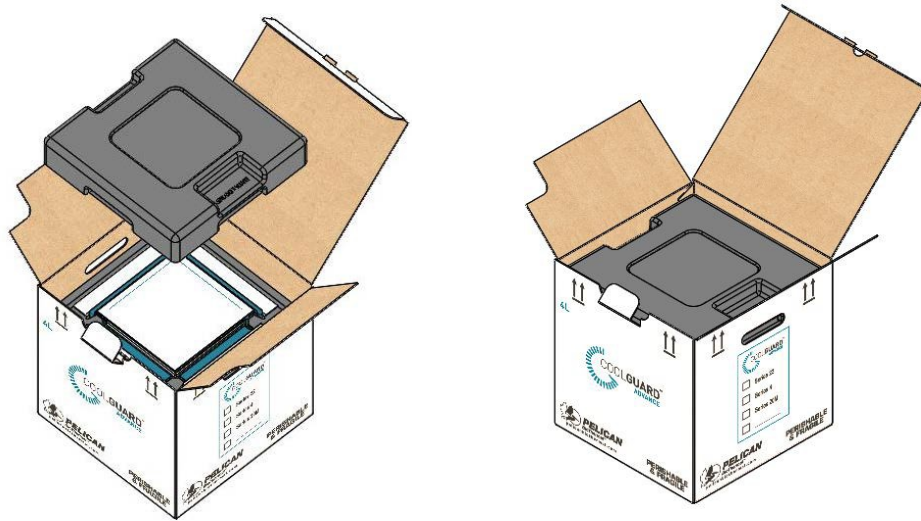
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## Packing your CoolGuard™ Advance System

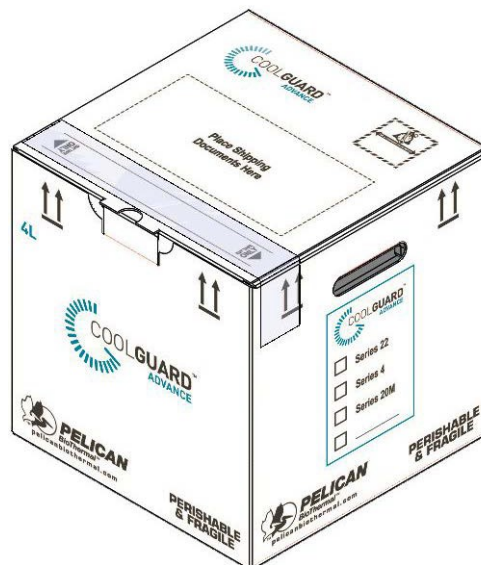
### Place Lid onto System

Place the Lid onto the CoolGuard Advance system making sure it rests flat and level without forcing.



### Close and secure the CoolGuard Advance Outer Carton

Close and secure Outer Carton with packing tape.



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## Caring for your CoolGuard™ Advance System

### How to Inspect and Replace Vacuum Insulation Panels (VIPs)

The Vacuum Insulation Panels (VIPs) in CoolGuard Advance systems are extremely effective as long as they hold an interior vacuum.

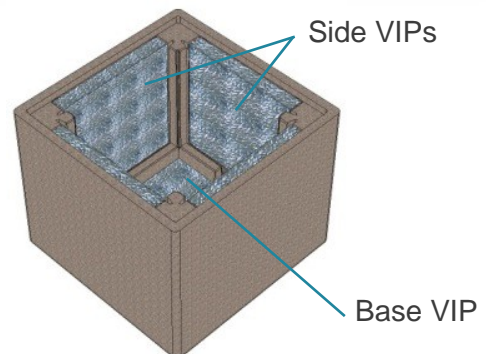
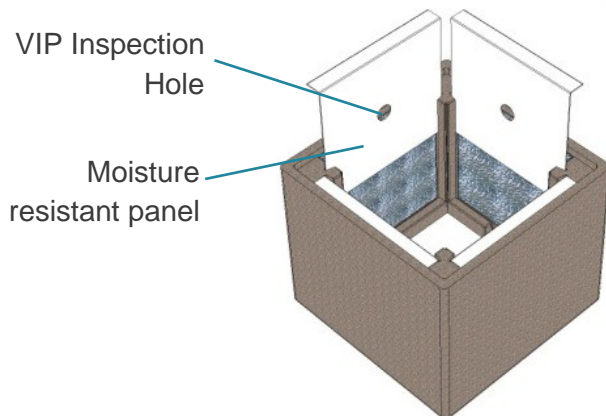
The 6 VIP components are located in the Lid (1), Sides (4) and Base (1) of the shipper case, behind the moisture resistant panel.

The VIPs can be easily inspected prior to use by looking at the VIP surface through the inspection holes provided in the moisture resistant panel. A loose skin or non-rigid panel indicates vacuum loss and the panel should be disposed of or recycled (please refer to page 8 for procedural instruction).

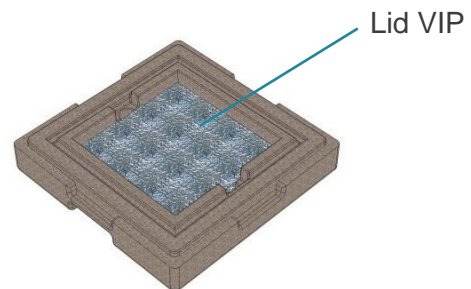
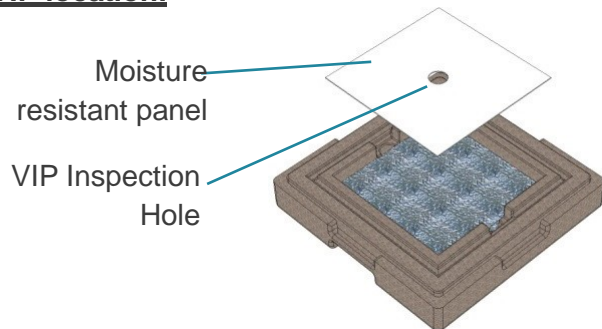
Replacement VIP components can be obtained from Pelican BioThermal and are easily fitted into place, please contact us for more information:

Pelican BioThermal  
Tel: +1 763-235-412-4800  
E-mail: [info@pelicanbiothermal.com](mailto:info@pelicanbiothermal.com)

### Base VIP locations:



### Lid VIP location:



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## Caring for your CoolGuard™ Advance System

### Conditioning Accessories – Infrared Thermometer (IR Gun)

We highly recommend using an Infrared temperature thermometer for an accurate, quick and easy reading of the temperature of the PCM BRIC and your product.

Ideally the IR gun will display in Celsius or Fahrenheit and will have a response time of less than one second. It should also have an accuracy of  $\pm 1.0^{\circ}\text{C}$  and a temperature resolution of  $0.1^{\circ}\text{C}$ . Most IR guns also come equipped with a laser for accurate aiming.

The IR gun should be calibrated to a recognized calibration standard (most manufacturers offer a three point calibration certificate for an additional charge).

### Procedure

The Infrared Temperature Thermometer is easy to use. Simply hold the gun about 15cm away from your target, squeeze the trigger while aiming the laser dot where you want to read the temperature. When you release the trigger the temperature will display for a short period of time.

Pelican BioThermal recommends taking PCM BRIC temperature readings from the center of the plain face.



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## CoolGuard™ Advance Component Recycling

### Overview

CoolGuard Advance shipping systems have been designed to be environmentally friendly in terms of reduced packaging material content per payload liter being shipped.

CoolGuard Advance system components can be recycled in the following ways:

### Corrugated Cardboard Components

(Outer Carton, Inner Carton, Moisture Resistant Panel) Can be recycled as standard Cardboard, please contact your local Cardboard Recycling facility.

### Expanded Polystyrene (EPS)

(Shipper Base and Lid) EPS is easily and readily recycled, please refer to [www.epsrecycling.org](http://www.epsrecycling.org) for details of your local facility. EPS can be recycled in a number of easy ways:

- Regrinding – EPS is ground down by a rotating cutter
- Compacted and sold on to be manufactured into something new
- Remolded into new polystyrene products
- Recycled into new products

### Vacuum Insulation Panels (VIPs)

CoolGuard Advance VIPs are constructed from two main components, the Barrier Film and the Core. The Barrier Film is a PET laminate, with a tiny amount of aluminum deposit. The Core contains fumed amorphous silica and carbon black.

Disposing of an expired VIP can be done via normal “Dry, Mixed Waste”, and it is recommended that the VIPs are NOT cut open.

Alternatively, VIPs can be returned to Pelican BioThermal for recycling. Please contact us for more details.

### PCM BRICS

CoolGuard PCM BRICS are an Inorganic Salt Solution phase change material, held within phenolic foam and encapsulated in a plastic film. All PCM BRICS are made of high quality, non-toxic materials but are not for human consumption.

We recommend PCM BRICS be returned to Pelican BioThermal. CoolGuard PCM BRICS are an Inorganic Salt Solution that, while may be safe for disposal, must meet all Regional and Local regulations.

