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TEMPARMOUR
VACCINE CARRIER

User Guide

Model VCT-4 / VCT-21

Model VCT-4 (includes Panels for refrigerated vaccines)
Model VCT-21 (includes Panels for frozen vaccines)

Panels can also be purchased separately and are interchangeable

Table of Contents

For Technical Support, contact:

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If you did not purchase directly through TempArmour Refrigeration, please provide us with your contact details in order that we can forward any future notifications related to your TempArmour Vaccine Carrier.

Caring for Vaccine Carrier Components

How to Clean TempArmour Carrier Components

• Clean the green PCM panels by using warm water and soap or a disinfecting cleaner.

• Clean the silver silver VIP box by using a damp towel with soap or a disinfecting cleaner

• Outer nylon bag: Clean the outer bag by using a damp towel with soap or a disinfecting cleaner.

DO NOT:

• Autoclave any of the components.

• Use any organic solvents such as acetone or methyl ethyl ketone (MEK) on any of the components.

• Expose any of the components to extreme heat (75°C or above)

• Use any abrasive cleaners on any of the components.

How to Inspect Vacuum Insulation Panels

The silver Vacuum Insulation Panel (VIP) box is extremely effective as long as the insulation panels that make up the box maintain their vacuum. Periodically inspect the VIP lid and inside surfaces of the box. Look for a loose skin appearance of the silver film on any panel which would indicate a compromised VIP panel. A compromised panel would be expected to have a reduced temperature hold time. The VIP box should be replaced if there is any evidence of a compromised panel. *Note: The tightness of the clear plastic outer layer does not impact holdover.*

Avoid removing the VIP box from the outer bag.

Introduction

Thank you for choosing the TempArmour® Vaccine Carrier (Models: VCT-4 / VCT-21). TempArmour® Refrigeration has long been a leader in providing effective cold chain management solutions for vaccines. Similar to the TempArmour® Refrigerator and TempArmour Freezer®, the design and integrated technologies of this vaccine carrier simplify and provide a higher level of protection for vaccines than traditional solutions.

The TempArmour Vaccine Carrier uses Phase Change Material (PCM) and Vacuum Insulated Panel (VIP) technologies to maintain vaccines within the required temperature range for up to 3 days (without a backup power source).

Model VCT-4 includes Panels for refrigerated vaccines (2-8°C)
Model VCT-21 includes Panels for frozen vaccines (<-50 to -15°C)

TempArmour® PCM panels can also be purchased separately and are interchangeable

Prior to using the TempArmour Vaccine Carrier, please review this manual in its entirety to understand how to properly prepare and use this carrier to maintain the temperature in range for up to 72 hours (VCT-4 lab validated thermal performance). The actual hold time will vary depending on conditions.

Ensuring Optimal Performance

Always condition the six TempArmour® PCM Panels before use according to the instructions provided in this User Guide. (p.3-7)

Ensure all components are clean and free of damage. (p.8)

Ensure that the correct 6 panels are in place before securely buckling the bag closed (if you have interchangeable panels).

Be aware that opening the carrier after loading the vaccines reduces holdover time.

Be aware that if panels are not completely solid prior to use, the hold time will be reduced.

TempArmour® Vaccine Carrier Components:

TempArmour PCM Packs (for refrigerated OR frozen vaccines)

Vacuum Insulation Panel (VIP) Box

TempArmour Vaccine Carrier Bag

Lightweight Foldable Cart

Infrared (IR) Thermometer (to measure panel temperature)

It is also recommended to use a calibrated digital data logger (DDL) with a buffered probe and accuracy of +/- 0.5°C. Pre-chill the buffered probe prior to placing in the carrier if possible.

Other temperature monitoring devices with similar accuracy and calibration may also be suitable (e.g., a min max thermometer). Follow your Vaccine Program requirements as applicable.

Preparing -18°C Panels (for frozen vaccines)

1/ Place the 6 TempArmour PCM Panels in a freezer (below -23 °C) to solidify. Freeze times will vary depending on freezer temperature. To ensure that the panels are completely solid, shake them to verify no liquid can be heard. Once solid, they can be stored in the freezer until needed.

2/ Assemble the 6 panels in the insulated carrier with the TempArmour label facing in. Load the frozen vaccines and data logger* into the 5 panel assembly then cover with the sixth panel. *Note: Use a temperature device that meets the requirements of your Vaccine Program / local requirements to monitor the temperature inside the vaccine carrier during use.

ATTENTION

Assess whether the PCM Panels for frozen vaccines should be prepared/stored in a freezer that is not used for vaccine storage. (the size and volume of PCM Panels may have the potential to disrupt airflow / impact performance of some freezers).

Assembly & Packing Carrier (2-8°C Panels)

1/ Prepare panels in fridge or freezer as per the instructions on pages 3-5. Use the Infrared (IR) Thermometer, as directed, to ensure the panels are in the optimal temperature range prior to use.

If the panels begin "melting" (temperature reaches 5°C/36°F), the panels should be returned to the fridge or freezer to ensure that the carrier holdover time is not compromised.

2/ Assemble the 6 panels in the insulated (silver) VIP box with the TempArmour logo facing in and check the temperature as outlined on pages 3-5.

3/ Load the refrigerated vaccines into the 5 panel assembly; place the data logger or other temperature device probe in the middle of the vaccines, then cover with the sixth panel.

*Note: we recommend using a temperature device to monitor the temperature inside the vaccine carrier during use. (see p.2)

Preparing 2-8°C Panels (for refrigerated vaccines)

OPTION 1: Prepare 2-8°C PCM Panels in the REFRIGERATOR

*The phase change material in the TempArmour panels solidifies at 4˚C (39˚F) therefore the refrigerator temperature must be below 4˚C (*39°F) *for this option to be viable.*

Place the 6 panels in the refrigerator (laid flat and spread out if possible). Leave the panels in the refrigerator until solid (24+ hours). To ensure that the panels have completely solidified, shake them to verify no liquid can be heard.

After the panels are completely solid, they can be stored in the refrigerator until needed.

You can use the Infrared (IR) Thermometer to ensure the temperature of the panels is below 5°C.

Assemble and pack the vaccine carrier (see p.6)

ATTENTION

It is recommended to store / prepare PCM Panels in a refrigerator that is not used for vaccine storage (the size and volume of PCM Panels have the potential to disrupt airflow / impact performance of some vaccine storage units).

Option 1 works best when preparation time is not limited as the panels can take a few days to solidify for use.

The advantage of conditioning the panels in the refrigerator is the panels can be used directly from the refrigerator to the vaccine carrier.

Note: The coldest area in the refrigerator is often at the bottom of the refrigerator.

Preparing 2-8°C Panels (for refrigerated vaccines)

OPTION 2: Prepare 2-8°C PCM Panels in the FREEZER and Stage at Room Temperature

Place the 6 TempArmour® Panels in a freezer to solidify. If possible, lay the panels flat, label side face up. Freeze times will vary depending on freezer specifications. To ensure that the panels are completely solid, shake them to verify no liquid can be heard.

Once solid, they can be stored in the freezer until needed, however factor in enough time for the panels to be staged (warmed up) at room temperature prior to assembly in the vaccine carrier for use. The time will vary depending on the temperature of the freezer.

Staging the Panels at Room Temperature:
Remove the panels from the freezer to prepare for use. The panels should not be stacked and should have ample air flow around all panel sides during this staging time.

After removing the panels from the freezer, 30+ minutes is the minimum staging time (at room temperature) to allow the panels to rise to the temperature ready for use. Note: staging time will vary depending on room and freezer temperatures, etc.

Use the Infrared (IR) Thermometer to ensure the panels have reached the safe operating temperature prior to use. Point the laser at each panel for surface temperature readings. The panels are ready to assemble in the Vaccine Carrier when the IR Thermometer reads between 3-4°C (37-39°F).

Once assembled, close the carrier for 30 minutes then open and use the IR Thermometer again to check if the panel surfaces are still above 3°C / 37°F. Vaccines can be added to the carrier if the panel temperatures are above 3°C and have not dipped lower since the panels were first placed in the carrier.

Otherwise, take out panels for another 30 minutes and repeat the process.

Preparing 2-8°C Panels (for refrigerated vaccines)

OPTION 3: Prepare 2-8°C Panels in FREEZER and Stage in Fridge

Place the 6 TempArmour® panels in a freezer. Freeze times will vary depending on freezer temperature. To ensure that the panels have completely solidified, shake them to verify no liquid can be heard.

Staging the Panels at Room Temperature:
After the panels are completely solid, remove the panels from the freezer. The panels should not be stacked and should have ample air flow around all panel sides.

Thirty minutes is the estimated staging time at room temperature to ensure the panels have risen to 3-4 °C prior to moving to the refrigerator. Staging time will vary depending on room and freezer temperatures, etc.

Use the Infrared (IR) Thermometer to ensure the panels have reached 3-4 °C.

Place the panels inside the refrigerator. The panels can then be stored in the refrigerator until needed (see p.3). If the refrigerator's temperature is below 4°C (39°F), the PCM within the panels will stay solid and the panels can be stored indefinitely in the fridge until ready to use.

Use the provided Infrared (IR) Thermometer to ensure the panels are within 2-4.5°C prior to use. The panels are ready to assemble in the Vaccine Carrier from the fridge when the IR Thermometer reads between 2°C and 4.5°C.