



**va-Q-tec**

**Short Journey Transport Container**

**User Operations Manual**

Updated 24.03.2022

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vQt-SJBC-POM-131119

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## 1 GENERAL

The Short Journey Container is made from Expanded Polypropylene (EPP) and is surrounded by a fabric belt for easy handling. The container maintains specific internal temperature ranges by using phase change material flasks (PCM) or dry ice.



Figure 1: Photograph of Short Journey Transport Container

### 1.1 EXPANDED POLYPROPYLENE (EPP) CONTAINER

The container materials are EPP (Expanded Polypropylene) and PP (Polypropylene), which are tough and flexible thermoplastic polymers. The fabric outer is made from durable Cordura material. These recyclable materials are all compliant with the European Parliament and Council Directive 94/62/EC on Packaging and Packaging Waste and all of its amendments and consolidated versions. Please refer to the documents "va-Q-tec Recyclable Materials" for detailed evidence.

## 1.2 FABRIC OUTER

The fabric outer surrounds the container and allows easy handling. It has a labelholder which sits at the top of the container, a barcode window (if required) to the front, the NHSBT Logo at the top right hand corner and has a metal closing mechanism which is tamper proof when used with a sealable cable tie. It also has a plastic 'shoe' which will protect both the inner container and fabric outer when being loaded on to a vehicle. The ergonomically designed handles at either side of the container encourage the correct manual handling techniques.



Figure 2: Photographs of fabric outer

### 1.3 PHASE CHANGE MATERIALS (PCM) FLASKS

Phase change materials store and release thermal energy within their phase change transition process from solid to liquid and vice versa.

The hot & cold thermal energy storage elements developed by va-Q-tec are named va-Q-accus (“accu” for short). The thermal energy is stored within the phase transition process. During the liquid-solid transition (melting and freezing) thermal energy is released or absorbed. There are two different types of accus for different internal temperature ranges used for the container. They are both filled with paraffin-based PCM (phase change material) but have different melting/freezing points.

The green va-Q-accu PCM, pictured below Fig. 3, melts/freezes at 22°C +/- 2°C.



Figure 3: Green va-Q-accu +22G

The blue va-Q-accu PCM, pictured below Fig. 4, melts/freezes at 4°C +/- 2°C.



Figure 4: Blue va-Q-accu +04G

The use of these elements protects blood components from getting too warm or too cold during high or low ambient temperatures during transportation.

## 2 CONTAINER SIZES AND WEIGHTS

The table below details the container sizes, weights and the required amounts of temperature stabilisation material required for the transportation of each blood component in each size container.

To achieve a 7-hour journey time for platelets and 5.5-hour journey time for red blood cells, it is essential that the containers are packed as stated in Section Three of these instructions.

Small Container	
<b>External Measurements (mm)</b>	
<b>Length</b>	<b>410</b>
<b>Width</b>	<b>310</b>
<b>Depth</b>	<b>270</b>
<b>Volume (litres)</b>	<b>34.9</b>
<b>Internal Measurements (mm)</b>	
<b>Length</b>	<b>335</b>
<b>Width</b>	<b>215</b>
<b>Depth</b>	<b>155</b>
<b>Volume (litres)</b>	<b>11.2</b>
<b>Weight Empty (Kgs)</b>	<b>2</b>
<b>PCMs required for +4°C +/- 2°C</b>	<b>4</b>
<b>Maximum Total Weight (fully laden)</b>	<b>8</b>
<b>PCMs required for +22°C +/- 2°C</b>	<b>4</b>
<b>Maximum Total Weight (fully laden)</b>	<b>8</b>

## 3 PREPARATION FOR LOADING

### 3.1 PCM/ACCU PRECONDITIONING

- 3.1.1 The BLUE phase change materials (PCMs) must be used for the transportation of all blood components requiring temperature stabilisation at 4°C +/- 2°C (red blood cell components).
- 3.1.2 The GREEN phase change materials (PCMs) must be used for the transportation of all blood components requiring temperature stabilisation at 22°C +/- 2°C (platelet components).
- 3.1.3 It is essential that the containers are packed and the PCMs pre-conditioned as per the instructions below in order to maintain the optimum product temperature.
- 3.1.4 The BLUE va-Q-accu PCM flasks have to be stored for at least 72 hours at 4°C +/- 2°C prior to use to store sufficient energy for transport.
- 3.1.5 The GREEN va-Q-accu PCM flasks have to be stored for at least 48 hours at 22°C +/- 2°C prior to use to store sufficient energy for transport.
- 3.1.6 When pre-conditioning, air gaps of at least 1.5 cm/1 inch must be left between each PCM to ensure good air flow and equal preconditioning of each piece. The use of foam matting during storage will aid this process. The PCMs can be slotted into the foam matting on either a storage trolley or roll cage.

### 3.2 STORAGE OF THE CONTAINER

The container must be stored at room temperature when not in use. It must not be exposed to extremes of hot or cold temperatures during storage.

### 3.3 CHECKING THE CONTAINER FOR DAMAGE

- 3.3.1 The container must be checked for damage prior to preparation. It must be inspected for visible damage such as holes prior to each use. The container should also be checked for cleanliness.
- 3.3.2 The following must be checked in detail:
- The outer walls of the container
  - The inner walls of the container
  - The fabric outer



3.3.3 If damage is found during inspection, the following instructions must be followed.

### 3.4 DAMAGE DEFINITION

3.4.1 Normal wear and tear damage such as light scratches and surface scuffs will not interfere with the integrity of the container and need not be reported.

3.4.2 The container may be seriously damaged, such as described below. If any of these examples are found, you must seek advice from your supervisor. Serious damage reduces the thermal performance of the container and the safety of the products/components which are being transported.

Examples of serious damage:

- broken external walls
- broken internal walls
- broken top cover/lid

3.4.3 If the container is heavily soiled/dirty, you must check with your supervisor to see if the container is in a satisfactory condition for continued use. Damaged containers must be returned to the supplier according to the standard processes.

### 3.5 OPENING THE LID

3.5.1 Take the container and open the metal closing mechanism by lifting the lever at the bottom Fig.6, of the mechanism and removing the loop from the hook on the fabric outer flap Fig.7.



Figures 6 & 7: Opening the closing mechanism

- 3.5.2 Open the lid by lifting the flap on the fabric outer Fig. 8 to expose the container lid and corner lip. Place your fingers under the corner lip whilst firmly holding the container Fig.9. Gently pull the container lid until it releases from the inner container Fig. 10.



Figures 8, 9 &10: Opening the container lid

- 3.5.3 The container is now ready for loading.

## 4 PREPARATION FOR TRANSPORTATION AT 4°C +/- 2°C

- 4.1 Place the required fully pre-conditioned BLUE PCM(s) into the bottom of the container.
- 4.2 Line the container with a plastic bag as per standard process.
- 4.3 Load the blood components into the container and into the liner.
- 4.4 Seal/close the plastic liner as per standard process.
- 4.5 Place the required fully pre-conditioned BLUE PCM(s) on to the blood components.
- 4.6 The correct amount of BLUE PCMs must be used according to the container size and according to the table below. Following further validation of the containers, variations to these packaging combinations may exist, in which case, you must refer to process datasheets (DATs).

Container Size	Using blue PCMS which have pre-conditioned for 72 hours		
	No. of PCMs	No. of Components or Products	Layout
Small Container	<b>4</b>	<b>1 – 6*</b>	<p style="text-align: center;">Two PCM's at the bottom, laid side by side</p> <p style="text-align: center;">Two PCM's at the top, laid side by side by side</p> <p style="text-align: center;">Components can be laid flat between the PCMs</p>

*\*Every effort should be made to utilise a small container for the transportation of 1-6 units. However, if a small container is not available, please consult process datasheets (DATs) for container and packing instructions.*

- 4.7 All empty space must be filled with paper towel/roll/sheet to ensure components and PCMs are held secure within the container during transportation.
- 4.8 After following all local procedures, the container must be closed using the closing mechanism by placing the large loop over the hook on the outer fabric flap and pushing the lever at the bottom towards the container. A cable tie with the box label must be inserted into the small loop and secured to seal the container and to provide evidence of tampering.
- 4.9 The container is now ready for despatch.

## 5 PREPARATION FOR TRANSPORTATION AT +22°C +/- 2°C

- 5.1 Place the required fully pre-conditioned GREEN PCM(s) into the bottom of the container.
- 5.2 Line the container with a plastic bag as per standard process.
- 5.3 Load the blood components into the container and into the liner.
- 5.4 Seal/close the plastic liner as per standard process.
- 5.5 Place the required fully pre-conditioned GREEN PCM(s) on to the blood components.
- 5.6 The correct amount of GREEN PCMs must be used according to the container size and according to the table below. Following further validation of the containers, variations to

these packaging combinations may exist, in which case, you must refer to process data sheets (DATs).

Container Size	Using Green PCMS which have pre-conditioned for 48 Hours		
	No. of PCMs	No. of Components or Products	Layout
Small Container	<b>4</b>	<b>1 – 6**</b>	<p style="text-align: center;">Two PCM's at the bottom, laid side by side</p> <p style="text-align: center;">Two PCM's at the top, laid side by side by side</p> <p style="text-align: center;">Components can be laid flat between the PCMs</p>

*\*\*Every effort should be made to utilise a small container for the transportation of 1-6 units. However, if a small container is not available, please consult process datasheets (DATs) for container and packaging instructions.*

- 5.7 All empty space must be filled with paper towel/roll/sheet to ensure components and PCMs are held secure within the container during transportation.
- 5.8 After following all local procedures, the container must be closed using the closing mechanism by placing the large loop over the hook on the outer fabric flap and pushing the lever at the bottom towards the container. A cable tie with the box label must be inserted into the small loop and secured to seal the container and to provide evidence of tampering.
- 5.9 The container is now ready for despatch.

## 6 TRANSPORTATION OF CONTAINER

### 6.1 CARRYING AND LOADING

- 6.1.1 The container must be carried using both handles and held upright with the lid and label wallet at the top and the plastic shoe at the bottom. It **must not** be held with one handle only allowing the container to be tipped to one side as this will cause damage to the products/components inside.
- 6.1.2 The container **must not** be thrown and must be handled with care at all times both when

empty and full. Inappropriate use of the container in this way will inevitably cause damage to the products/components inside or, if empty, to the container itself.

- 6.1.3 The container must not be stacked more than five high.
- 6.1.4 The container must be loaded carefully on to a vehicle and secured or stacked securely within the vehicle to ensure that it does not topple during shipment to protect the products inside.
- 6.1.5 If a container is transported on the back of a motorcycle, it must be completely covered with a waterproof cover and protected from the elements or, placed into a pannier or box on the back of the motorcycle during transportation.
- 6.1.6 If a container is transported in a car seat, it must be secured by the seatbelt. If it is being transported in the rear luggage compartment, the container must be secured.
- 6.1.7 Trolleys must be used when handling more than one container (Figures 11 & 12).



Figures 11 & 12: Container and Trolley

## 6.2 UNLOADING RETURNED CONTAINERS

- 6.2.1 Take the container and open the metal closing mechanism by lifting the lever at the bottom Fig.6, of the mechanism and removing the loop from the hook on the fabric outer flap Fig.7.
- 6.2.2 Remove PCMs and store in pre-conditioning area as per standard procedures.
- 6.2.3 If dry ice has been used and is still within the container, dispose of the dry ice as per standard procedures.
- 6.2.4 Close the container lid and fabric belt and store the container.

## 6.3 HEALTH & SAFETY

- 6.3.1 The container design minimizes hazards to personnel and equipment during use. No material used in the construction constitutes a risk to the health and safety of the personnel involved. All structural and mechanical components are free of sharp edges. Every attempt has been made to anticipate potential dangers and built in protections to prevent injury.
- 6.3.2 Normal precautions should be observed when handling the lids or the fabric belt closing mechanism. Wherever necessary, labelling will be attached to the container to warn users of any hazards.
- 6.3.3 No dangerous or hazardous materials are used for the PCMs/accus. The liquid content is paraffin based and is similar to that used in many hand creams. A Material Safety Data Sheet is available.

## 7 CLEANING INSTRUCTIONS

During the course of use, containers may become soiled/dirty. If this is the case, standard cleaning materials currently in use in NHSBT with water can be used to clean the container. Containers can also be cleaned with decontamination, alcohol based fluids or sodium hypochlorite at normal room temperature.

Do not use any cleaners with high corrosive agent content as this could cause corrosion of some of the container parts.

### 7.1 RECOMMENDED PRODUCTS

- 7.1.1 In case of contamination, only cleaning agents which are designated by NHSBT must be used to clean the container. Please refer to the relevant datasheet (DAT).
- 7.1.2 The use of a plastic bag to line each container for shipment will ease cleaning procedures and maintain health and safety standards.

### 7.2 CLEANING PROCEDURE

- 7.2.1 Cleaning is recommended to be carried out with a soft sponge and cloth to avoid scratching and marking of the containers.
- 7.2.2 If the container is heavily contaminated, for example with stickers, an oxidising cleaning

agent can be used to remove them with a cloth.

## 8 MANUAL HANDLING

### 8.1 CONTAINER LIFTING

It is important that all staff handling the containers follow the Health & Safety Executive (HSE) guidance on lifting and carrying (Manual Handling Operations Regulations 1992). A full manual handling risk assessment should be in place for the use of the containers.

The following HSE guidelines should be adopted. However, this list is not exhaustive, and every attempt should be made to take care when handling fully loaded containers.

- 8.1.1 **Think before lifting/handling.** Plan the lift. Can handling aids be used? Where is the load going to be placed? Will help be needed with the load? Remove obstructions such as discarded wrapping materials. For a long lift, consider resting the load midway on a table or bench to change grip, or use a trolley.
- 8.1.2 **Adopt a stable position.** The feet should be apart with one leg slightly forward to maintain balance (alongside the load, if it is on the ground). Be prepared to move your feet during the lift to maintain your stability. Avoid tight clothing or unsuitable footwear, which may make this difficult.
- 8.1.3 **Get a good hold.** Where possible, the load should be hugged as close as possible to the body. This may be better than gripping it tightly with hands only.
- 8.1.4 **Start in a good posture.** At the start of the lift, slight bending of the back, hips and knees is preferable to fully flexing the back (stooping) or fully flexing the hips and knees (squatting).
- 8.1.5 **Don't flex the back any further while lifting.** This can happen if the legs begin to straighten before starting to raise the load.
- 8.1.6 **Keep the load close to the waist.** Keep the load close to the body for as long as possible while lifting. Keep the heaviest side of the load next to the body. If a close approach to the load is not possible, try to slide it towards the body before attempting to lift it.
- 8.1.7 **Avoid twisting the back or leaning sideways, especially while the back is bent.** Shoulders should be kept level and facing in the same direction as the hips. Turning by moving the feet is better than twisting and lifting at the same time.



- 8.1.8 **Keep the head up when handling.** Look ahead, not down at the load, once it has been held securely.
- 8.1.9 **Move smoothly.** The load should not be jerked or snatched as this can make it harder to keep control and can increase the risk of injury.
- 8.1.10 **Do not lift or handle more than can be easily managed.** There is a difference between what people can lift and what they can safely lift. If in doubt, seek advice or get help.
- 8.1.11 **Put down, and then adjust.** If precise positioning of the load is necessary, put it down first, then slide it into position.

## 8.2 CONTAINER HOLDING AND CARRYING

- 8.2.1 The containers have ergonomically designed handles at each side.
- 8.2.2 The handles should be held one in each hand Fig.13.
- 8.2.3 When standing with the container, elbows should be at right angles and forearms parallel to the floor, holding the container as close to the body as possible Fig.14.



Figures 13 & 14 : Holding the container correctly

- 8.2.4 Only **one** container should be carried at a time. If multiple containers need to be moved, a trolley should be made available for this purpose. The containers stack easily on top of one another, although this must not be more than 5 high Fig.15.
- 8.2.5 The container must not be overloaded. No more than the maximum amount of products stated in the above tables must be placed into the container at any one time.





Figure 15: Containers stacked on trolley