1. Principle:
2. Most blood components and products are ordered directly by hospitals from Canadian Blood Services. Hospitals have the option of transferring blood and blood products between facilities for optimal utilization or to ensure best patient care. In such cases, it is necessary to ensure that the blood products are properly packaged to maintain an acceptable temperature range during transportation, and the process ensures accurate tracking and disposition reporting.
3. The Minnesota Thermal Science (MTS) shipping container provided by ORBCoN for redistribution of blood and blood products uses “Phase Change” material to maintain a temperature of between 1°C and 10°C for a specified period of time. Phase Change Material (PCM) has a high rate of heat fusion, which allows it to absorb and release energy depending on the ambient temperature surrounding it. When the temperature becomes warmer, the PCM liquefies and absorbs heat energy and stores it. When the temperature begins to fall the PCM begins to solidify and releases stored heat energy.
4. **Scope and Related Policies:**
   1. Shipped blood components and plasma protein products for the purpose of redistribution must be accompanied by IM.006F1 – Inter-hospital Redistribution form
   2. All blood components and plasma protein products must be visually inspected for abnormal appearance immediately before packing for transportation. This inspection must be documented.9.1
   3. Blood components and plasma protein products must be transported in a manner that will maintain the storage temperature requirements specified by the supplier in a validated shipping container.9.1, 9.2 Compliance with these specifications is acknowledged by the signed Memorandum of Understanding on file with ORBCoN.
   4. Shipping containers shall have an outer label that meets provincial, territorial or federal transport regulations and identifies:

* The shipping and receiving facility
* That the contents are human blood components or blood products
* Any other cautions and or descriptions
  1. Record of the storage temperature of the components/products must be available on request.
  2. Shipping containers for blood components and plasma protein products must be constructed to resist damage and be designed to include a tamper evident seal, and examined for damage prior to use9.1
  3. All shipments of blood components and plasma protein products must include documentation that has the following information on shipping packing slip or issue voucher/form:
     + - Name of shipping facility and receiving facility
* Identification of components/products shipped (unit numbers/lot numbers) and description of component/product and total number of units shipped
* Date and time shipped
* Identification of person who packed shipment must be documented
* A unique shipping document has a unique number to allow for tracability9.1
* Indication if blood component/product is not intended for transfusion (e.g. sending for research purposes)

1. **Records/Forms/Documents:**

* [IM.006F1 Inter-hospital Redistribution Form](https://transfusionontario.org/wp-content/uploads/2020/07/IM.006F1-Inter_Hosptial-Redistribution-Form-3.docx)
* [IM.011F Materials/Devices Pre-Conditioning Log for Redistribution](https://transfusionontario.org/wp-content/uploads/2020/07/IM011F-Materials_Devices-Pre-Condintiond-Log-for-Red-Cells-Redistribution.docx)
* Way bill (if required)
* [IM.006F2 Shipping Address Label](https://transfusionontario.org/wp-content/uploads/2020/07/IM.006F2-Shipping-Address-Labels-1-1.docx)

1. **Materials:**
   1. **Equipment**

|  |  |
| --- | --- |
| ***If shipping temperature is between 1°C and 10°C*** | ***Then Use*** |
|  | 1  Heavy Nylon Cover  3  Vacuum Insulated Panel (VIP)  2  Thermal Insulated Chamber (TIC)  **MTS CREDO EMT SHIPPING CONTAINER** |

* 1. **Supplies**

Plastic bag (optional) Tamper evident seal (Plastic tie wrap)

Clean crumpled paper

1. **Quality Control**
   1. Periodic assessment of the shipping container shall be performed to confirm that temperatures remain consistent within acceptable temperature range under local conditions.
   2. Temperature checks upon receipt can be performed as required by hospital policy. See Procedure Notes 8.1
   3. Shipping containers must be inspected before and after each use.  
      Check that:

* The inner container (TIC) is clean and has no visible cracks or breaks
* The straps and buckles are in good condition
* The outer container (VIP) is free of damage
* Address labels from previous shipments have been removed (if required)

\*Note: Discard any materials deemed unacceptable for use and inform supervisor

* 1. The required shipping temperatures for blood components and plasma products are as follows:

|  |  |
| --- | --- |
| **PRODUCT** | **TEMPERATURE** |
| Red Blood Cell Units | 1ºC – 10 ºC |
| Plasma Protein Products | Consult IM.013 Appendix D |

4.6 Blood components that require a temperature range outside of 1ºC to 10ºC must be shipped using a shipping container other than the MTS EMT container

1. **Procedure**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| * 1. Pre-condition Thermal Insulated Chamber | * + 1. Pre-condition the thermal insulated chamber according to table below.  |  |  |  | | --- | --- | --- | | Container | Shipping Environment Temperature | Pre-Condition Temperature/Time | | MTS EMT | >4ºC | -18 ºC to -40ºC  For minimum of 8 hrs | |  | ≤4ºC | 4 ºC to 6ºC  For minimum of 6 hrs |  * + 1. Document the pre-conditioning temperatures on form [IM.011F](https://transfusionontario.org/wp-content/uploads/2020/07/IM011F-Materials_Devices-Pre-Condintiond-Log-for-Red-Cells-Redistribution.docx) |
| * 1. Inform Receiving Site | * + 1. Inform receiving site by phone or fax one day prior to shipping date the number of units that will be shipped.     2. If maintenance of minimum inventory depends on the arrival of products from the blood supplier, do not ship your “near to expire” products until the new shipment has been received from the blood supplier. |
| * 1. Retrieve shipping container | * + 1. Retrieve shipping container and all required supplies |
| * 1. Inspect container and supplies | * + 1. Ensure the Velcro straps are in good condition.     2. Ensure the outer container is free of rips/breaks and prior address labels.     3. Ensure the inside TIC is free of ice, water or other debris.     4. If TIC was pre-conditioned in the fridge, before adding products, verify the phase change material is liquid by gentle shaking |
| * 1. Retrieve products intended for redistribution | 1. Remove identified products for redistribution from storage area 2. Complete section A and B of Form [IM.006F1](https://transfusionontario.org/wp-content/uploads/2020/07/IM.006F1-Inter_Hosptial-Redistribution-Form-3.docx) and follow established facility protocol for transfer of blood or blood products. |
| * 1. Pack components | 1. Pack products within 20 min of scheduled courier pick up. 2. Place components in plastic bag. *(if applicable)* 3. Follow packing method described below.   ***For MTS EMT container: Up to 4 RBC units per container***     1. Place temperature monitoring device where applicable inside the container prior to closing. (If applicable) 2. Insert tamper proof indicator on container. |
| * 1. Review documentation | 1. Review form IM.006F1 for accuracy and completion of all required information. 2. Copy the completed Form IM.006F1. Retain the copy in laboratory for specified amount of time according to your facility’s documents and record retention policy. 3. Fold and place original form IM.006F1 in pouch located on the top of the shipping container. |
| * 1. Label container | 1. Complete shipping label [IM.006F2](https://transfusionontario.org/wp-content/uploads/2020/07/IM.006F2-Shipping-Address-Labels-1-1.docx) 2. Place label in pouch found on the top of the shipping container. 3. Ensure the correct “Return” address is found on the back of the “Ship to” address label. 4. Complete courier way bill. (*if applicable)* |
| * 1. Prepare for courier pick up | * + 1. Place shipping container with completed documents where courier can retrieve easily.     2. Document time of courier pick up on facility generated log sheet. *(if applicable)* |
| * 1. Receiving shipping container with products | 1. Receive shipping containers from courier as per facility policy. 2. Retrieve documents from shipping container pouch located on the top of container. 3. Follow established facility protocol for receiving products into inventory. 4. Complete section C of Form [IM.006F1](https://transfusionontario.org/wp-content/uploads/2020/07/IM.006F1-Inter_Hosptial-Redistribution-Form-3.docx). 5. File Form IM.006F1 as per facility established documents and record retention policy. 6. Prepare the empty shipping container for shipment back to originator by placing the “return to” label in pouch facing up and place for courier pick up in designated pick up area. |

1. **Reporting – N/A**
2. **Procedural Notes:**
   1. Extremes of ambient temperature, travel time greater than 24 hrs or failure to follow the written instructions may cause shipped blood components to deviate from acceptable temperature range
   2. If there is evidence that the shipping box’s internal temperature did not maintain the required temperature range consult with your TS Medical Director before accepting units into inventory. Follow established facility procedure for accepting products into inventory.
3. **References:**
   1. CSTM/SCTM Standards for Hospital Transfusion Services, Version 4, Ottawa, ON: Canadian Society for Transfusion Medicine, April 2017: 5.6.1
   2. Golden Hour® 24/2 Shipping Container Validation Report, M. Collins, Newfoundland and Labrador Provincial Blood Coordinating Program, CjMLS, 2010.72.3: 62-69
4. **Revision History**

|  |  |
| --- | --- |
| **Revision Date** | **Summary of Revision** |
| August 8. 2014 | * Revised name of manual * Revised name of document * Removed section 2.0- Purpose and renumbered document * Revised sections 3.0, 4.0 & 5.0 * Renumbered section 7.0 * Updated list of references to include most recent editions |
| Oct 26. 2017 | * Removed reference to credo shipping containers for PLTs. * Added 4.6 * Minor editing * Updated list of references to include most recent editions |