Sutter Health
Sutter Roseville Medical Center

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|---|---|
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| **Owner:** | *Irene Wittkop: Coord, Transfusion Service* |
| **Policy Area:** | *Lab - Transfusion Service* |
| **References:** | |
| **Applicability:** | *Sutter Roseville Medical Center* |

# Thawing a Frozen Plasma or Cryoprecipitate



**Purpose**

This procedure describes the process to thaw Fresh Frozen Plasma (FFP) or cryoprecipitate (Cryo) and how to label the thawed component using the laboratory computer system.

**Policy**

- Previous historical record may be used to determine the blood type of the recipient, as long as the following criteria are met:
  - Blood Type is on the same MRN from an RV encounter
  - For inpatients: once per admission
- For RV outpatients: once every three months.
- The sample must be collected by authorized personnel (ie: laboratory phlebotomists, physician , OP IV Therapy or NICU RNs) but no Blood Bank armband is required
- Frozen components must be thawed prior to issue.
- FFP will be converted to 5 day product and will be substituted for fresh frozen plasma with the following exceptions:
  - Recipients that have been reported to the Transfusion Service as having known deficiencies of Factor V or Factor VIII.
  - Transfusion of neonates.
- Combination of AB and A plasma will be used as Universal Donor plasma in emergent situations when no patient blood type is available.
- Thawed plasma is to be ABO plasma compatible except in rare situations when it is unavailable.
  - Limited to 2 units within a 24 hour period except in cases of MTP where limit is increased to 4
- Irradiation and CMV markers are not applicable to frozen products due to the absence of viable white cells.

**Equipment/ Supplies**

| Equipment | Supplies |
|---|---|
| Automated Plasma Water bath<br>OR<br>Plastic Tub (Back up Option) | Plastic overwrap bags<br>Security snaps for water bath, if available |

**Procedure: Thawing FFP and/or Cryoprecipitate**

Follow the steps below to thaw FFP or Cryo in the automated plasma water bath. Follow the backup procedure if neither of the water baths are working.

| Step | Action |
|---|---|
| 1. | Check if thawed product is already available. |

| If: | Then: |
|---|---|
| Thawed product available | Proceed to "Entering Results in Blood Order Processing" SOP |
| No thawed product available | Proceed to Step 2. |

| | |
|---|---|
| 2. | Remove appropriate unit(s) from the freezer and record time on the order requisition and/or box.<br>Note: Expiration date and time of thawed product will be based on time removed from freezer. |
| 3. | Remove products from box and visually inspect the FFP for evidence of thaw; FFP should have slight indentation(s) visible on the sides of the unit. |

| If: | Then: |
|---|---|
| Rubber band indentation or container folds of frozen unit are not evident | • Place product in Quarantine<br>• Notify Transfusion Service Specialist/Coordinator for follow-up investigation |

| | | |
|---|---|---|
| | | • Select another frozen product that meets criteria needed |
| | Cracks in plastic of container are visible | • Return product to blood supplier for investigation<br>• See *Transferring/Returning Blood Components* procedure<br>• Select another frozen product that meets criteria needed |
| | Rubber band indentation or container folds are present and no cracks are visible in container | Proceed to next step |

4. • Remove water bath cover and verify the water bath temperature is within acceptable limits (30-37C).
   • Verify that the water level mark is at high mark

| If: | Then: |
|---|---|
| Chamber temperature agrees with calibrated thermometer **AND** temperature is within acceptable limits (30-37C) and the water level is correct | Proceed to step 5 |
| Water level is below high mark | Add warm water to high mark |
| Controller temperature does not match calibrated thermometer but both temperatures are within 30-37C | • Use alternate device to thaw plasma<br>• Refer to "Calibration of the Digital Controller" section of Helmer Plasma Thawing Manual |
| Temperature of device is not in acceptable range | • Use alternate device to thaw plasma<br>• Trouble shoot source of problem. If unable to resolve, request service from Bio Medical Engineer<br>• Report to Transfusion Service Specialist/Coordinator |

5. Press the Basket Access Button to raise the basket assembly.
6. Insert frozen component into overwrap bag (1 FFP, 1 pooled cryo or 3-5 Cryo/bag) with the port side up.
7. Place component in pouch/basket of water bath. Snap the top of the overwrap bag with the Security Snap to prevent product from being exposed to water during the thaw cycle.
   *Note: When loading 2 bags into each side of Helmer basket assembly, place bag with the widest profile in the compartment that is towards the front of the unit. The metal basket assembly dividers located between compartments may be removed to accommodate larger sized bags.*
8. Using the table below, determine the appropriate thaw time for the product.

| Product | Helmer |
|---|---|
| FFP, Single Unit | 16 minutes |
| FFP, Jumbo Unit | Total of 40 minutes:<br>• Cycle for 20 minutes<br>• Massage product to break up any remaining chunks<br>• Cycle for an additional 20 minutes |
| Cryo Reduced Plasma | 14-18 minutes (volume of product will vary) |
| Cryo Pool | 12 minutes |
| Cryoprecipitate, Single Unit | 8 minutes |

9.

| If: | Then: |
|---|---|
| Timer on plasma thawer is set for correct time | Proceed to next step. |
| Timer on Helmer water bath is set for incorrect time | • Press the time set button to advance through pre-programmed times until desired cycle time is selected<br>• Proceed to next step |

10. Press "Start" to begin thaw cycle.
11. Remove the overwrap bag from the basket assembly and take out the component once thawing is complete. Dry component

with a towel if needed.

| If: | Then: |
|---|---|
| Product bag is leaking | • Change disposition of unit to Discarded in Blood Status Update<br>• Select new unit to thaw<br>• Complete Credit Request in Customer Portal<br>• Discard unit in biohazard trash |
| Unit is incompletely thawed | • Gently break up any frozen chunks in bag<br>• Return to pouch and thaw for an additional 5-20 minutes |
| Unit is completely thawed but contains visible precipitate | • Return to pouch and cycle for an additional 5-20 minutes. |
| Unit contains visible precipitate greater than the size of a dime after 20 minutes of additional time in water bath | • Complete Return Request n Customer Portal<br>• Return unit to Vitalant. See Transfer/Rtrun procedure<br>• Update Status in Sunquest. See "Blood Status Update Procedure". |
| Unit is completely thawed and free from precipitate | • Complete component prep in laboratory computer system. Refer to "Computer Component Processing" section of this SOP.<br>• Continue to next step |

12. Was product thawed to fill patient order?

| If: | Then: |
|---|---|
| Yes, being assigned to a specific patient | • Complete assignment in Blood Order Processing<br>• Label unit with computer generated unit tag |
| No, for "Emergent Use" stock | • Proceed to next step.<br>• Attach a blank Emergent/MTP Use: Non-RBC Product tag to the unit |

**14.** Store the thawed components appropriately if they are not immediately issued.

| If… | Then store at…. |
|---|---|
| FFP | 1-6ºC |
| Cryoprecipitate | 20-24ºC (Room Temperature) |
| | |

**Back Up Thawing Process**

Follow the steps below to thaw component when both automated plasma water baths are out of service.

| Step | Action |
|---|---|
| 1 | Complete step 1 of "Thawing FFP and/or Cryoprecipitate" section. |
| 2 | Fill a plastic tub with warm water. |
| 3 | Place thermometer in the water; lying on the bottom of the tub is acceptable. |
| 4 | Verify temperature is 30-37ºC; adjust if necessary using warm or cool water. |
| 5 | Place FFP or Cryos in the tub and agitate by hand frequently. Add warm water as needed to ensure they maintain 30-37ºC. |
| 6 | Remove component from plastic bag when thawing is complete. Dry component with a towel if needed. |
| 7 | Complete steps 7-8 of "Thawing FFP and/or Cryoprecipitate" section. |
| 8 | Empty water from tub and clean up the area. |

**Computer Component Processing**

Follow the steps below to component prep a frozen plasma product to a thawed product.

| Step | Action |
|---|---|
| 1 | Navigate to Blood Component Prep(BCP) and follow the prompts listed below: |

| Prompt | Action |
|---|---|
| Comp Prep Function Value | Enter appropriate Frozen Component Prep Code from the Table below. |

| | |
|---|---|
| Date | <Tab> to default to current date<br>OR<br>Enter correct processing date; then <Tab> |
| Time | Enter time unit placed into waterbath, then<Tab> |
| Shift | <Tab> |
| Tech | <Tab> to accept tech code displayed. |
| Continue | Click prompt to continue or ALT C to advance to the next screen. |
| Unit Number | Scan or enter the unit number <Tab> |
| Component | Scan the component code <Tab> |
| Unit Data | Follow the table below: |

| If… | Unit Data will… |
|---|---|
| Adult (200 ml) | Auto Populate. |
| Jumbo (400 ml) | Auto Populate. |
| Pediatric | Auto Populate. |
| Cryo Reduced Plasma | Auto Populate. |
| Single Cryo | Auto Populate. |
| Pooled Cryo | Auto Populate. |
| FFP24 | Enter the appropriate thawed component code. |

**Frozen Component Prep Codes**

Use the following frozen component prep codes.

| Component Preparation Description | Component Prep Function Code |
|---|---|
| Thawing 5 Day Adult | STHFP5 |
| Thawing 5 Day Jumbo | STHJP5 |
| Thawing Single Cryo | STHCR |
| Thawing Pooled Cryo | STHCP |
| Thawing Infant FFP | STHFPI |
| Thawing 5 Day FFP24 | STF245 |
| Thawing Cryo Reduced Plasma | STHCFP |

| Step | Action |
|---|---|
| 2. | Verify the input and output product code correlates in the "Task 1" section. Refer to "FFP Input Output code and Cryo Input Output code" table above. |

| If ... | Then ... |
|---|---|
| Input and Output information is correct | No action required<br>Proceed to Step 3 |
| Output information is incorrect and wrong component Prep Function was entered | Exit out of BCP and start again from Step 1. |
| Output information is incorrect and wrong output component code was used. | Enter the correct component code.<br>Verify Input and Output information is correct.<br>Proceed to Step 3 |
| Output information is incorrect and no issue can be determined | • Notify your Supervisor/designee for approval to issue the product. |

| | |
|---|---|
| 3 | Perform steps 1-2 for additional units that require the same prep code.<br>**Note**: If no additional units to prep proceed to next step. |
| 4 | Click <Save> or Alt "S". |

| Step | Action |
|---|---|
| 5 | Perform the following at the "Preview Output/New Units" prompt.<br>**If…** / **Then enter…**<br>Information is to be saved as displayed → Click "Finish"<br>Proceed to Step 6<br>Information needs to be corrected → Click "Cancel"<br>Correct any errors; return to Step 2 and proceed as instructed<br>Click Exit if you need to discard all data |
| 6 | Verify Digi-Track label printer status<br>**If:** / **Then:**<br>Operational → New ISBT product label will print<br>Proceed to step 7<br>Non Operational → Proceed to Downtime Labeling |
| 7 | Initial the ISBT Thawed Component Label. |
| 8 | Place the corresponding ISBT Thawed Plasma component label (refer to "FFP and Thawed Plasma Code Labeling Table and/or Cryo Code Labeling Table" in this SOP) directly over the original product label and expiration date in lower quadrant of unit label. |

**Downtime Labeling**

Complete the following steps when the ISBT label printer is not operational.

| Step | Action |
|---|---|
| 1 | Pull the following labels<br>• Product Code<br>• Thawed<br>• Revised Expiration |
| 2 | Pull the "Plasma and Cryo Downtime Form" and complete the following columns. |

| Column | Action |
|---|---|
| Date | Date unit is thawed. |
| Unit Number | Place a unit number sticker or write in unit number. |
| Input Component Code | Enter E code that is on the unit. |
| Output Component Code | Enter corresponding Output ISBT Code (see "FFP and Thawed Plasma Code Labeling Table and/or Cryo Code Labeling Table") |
| New Expiration Date | Enter new expiration date for the thawed product.<br>6 hours from thaw time for Cryo<br>24 hours from thaw time for 24 thawed FFP<br>5 days from thaw date for 5 day plasma |
| Prepared by | Tech code or Initial of person completing labeling process. |

| Step | Action |
|---|---|
| 3 | Write the new output ISBT E code on the Product Code Label. Partially attach the label to the unit so that both product codes can be viewed. |
| 4 | Place the Thawed label underneath the product description. |
| 5 | Complete the Revised Expiration label and place directly over the existing Expiration Date. |
| 6 | Have a CLS review the "Plasma and Cryo Downtime Form" to ensure output ISBT E code and Expiration date are correct. If they are acceptable the CLS will document their Tech code in the "Labeled/Unit Acceptability column of the "Plasma and Cryo Downtime Form" |

**FFP and Thawed Plasma Code Labeling Table**

| Original ISBT Code | 24 Hour Thawed Output ISBT Code | 24 Hour Thawed SQ Code | 5 Day Plasma Thawed ISBT Code | 5 Day Plasma Thawed SQ Code |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| E0701 | E0773 | FFPT | E2684 | PTHW |
| E0707 | E0785 | FFPT | E2702 | PTHW |
| E0713 | E0797 | FFPT | E2720 | PTHW |
| E0898V00 | E1310 | FFPT | E2021 | PTHW |
| E0900V00 | E1314 | FFPT | E2266 | PTHW |
| E4142 | E5893 | FFPT | E5642 | PTHW |
| E2553 | N/A | N/A | E2700 | CPTHW |
| E2585 | N/A | N/A | E2713 | CPTHW |
| E2617 | N/A | N/A | E2736 | CPTHW |
| E0869 | E1237 | FFPT | E2272 | PTHW |
| E0869VA0 | E1237 | FFPT | E2272 | PTHW |
| E0869VB0 | E1237 | FFPT | E2272 | PTHW |
| E0869V00 | E1318 | FPJT | E2284 | JPTHW |
| E0902V00 | E1318 | FPJT | E2284 | JPTHW |
| E0904VA0 | E1318 | FPJT | E2284 | JPTHW |
| E0904VB0 | E1318 | FPJT | E2284 | JPTHW |
| E0904V00 | E1320 | FFPT | E2278 | PTHW |
| E0904VA0 | E1320 | FFPT | E2278 | PTHW |
| E0904VAa | E1320 | FFPT | E2278 | PTHW |
| E0904VAb | E1320 | FFPT | E2278 | PTHW |
| E0904VB0 | E1320 | FFPT | E2278 | PTHW |
| E0904VBa | E1320 | FFPT | E2278 | PTHW |
| E0904VBb | E1320 | FFPT | E2278 | PTHW |
| E2619 | E2737 | FP24T | E7317 | PTHW |
| E2555 | E7292 | FP24T | E2701 | PTHW |
| E7644 | E7731 | FP24T | E2121 | PTHW |
| E7646 | E7750 | FP241T | E5548 | PTHW1 |
| E7648 | E7751 | FP242T | E5549 | PTHW2 |
| E7650 | E7752 | FP243T | E5550 | PTHW3 |
| E7607 | E7753 | FP244T | E2184 | PTHW4 |
| E2587 | E6623 | FP24T | E2719 | PTHW |
| E0701VA0 | E4845 | FDT | N/A | N/A |
| E0701VB0 | E4845 | FDT | N/A | N/A |
| E0701VC0 | E4845 | FDT | N/A | N/A |

**Cryo Code Labeling Table**

| Orginal Cryo ISBT Code | Thawed Cryo ISBT code | Thawed Cryo SQ code |
|---|---|---|
| E5165V00 | E3581V00 | CRT |
| E3573V00 | E3581V00 | CRT |
| E3587V00 | E3591V00 | CPT |

| | |
|---|---|
| **References** | Helmer Plasma Thawing System Manual Models DH4, SH8 Version L |
| **Related Documents** | Selecting Blood and Components for Transfusion<br>Blood Status Update |

All revision dates:

## Attachments

No Attachments

## Approval Signatures

| Step Description | Approver | Date |
|---|---|---|
| Laboratory Director | Lindsey Westerbeck: Dir, Lab | pending |