**Purpose**

This procedure provides instructions for thawing (defrosting) fresh frozen plasma (FFP) using the ARK Microwave Plasma Defroster. Cryoprecipitate (cryo) is not thawed using this method.

**Notes:**

* Use appropriate PPE when handling blood components.
* To be used only for thawing frozen plasma in plastic bags. Other substances will not thaw safely.
* Do not use in the presence of flammable gases.
* Do not defeat or tamper with safety interlocks in order to avoid exposure to microwave energy.
* It is important that the door closes properly and that there is no damage to the door, hinges, seals, or latches.

**Procedure:**

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| --- |
| **Operating the ARK Plasma Defroster:** |
| **Step** | **Action** | **Related Documents** |
| **Selecting Product to Thaw** |
| **1** | * The **preferred** storage temperature of plasma selected for microwave defrosting should be no colder than -600C and/or no warmer than -200C.
* Frozen plasma stored at -20 to -49 can be placed in microwave directly.
* Frozen plasma stored -50 or colder must wait 1-2 minutes on the counter prior to inserting in the microwave defroster.
* If thawing two bags at the same time, select bags of similar volume.
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| **2** | * Do not combine frozen plasma with partially thawed plasma.
* Complete thawing of any partially thawed plasma in the Helmer thawer.
 | Thawing Products using the Helmer QuickThaw System |
| **Thawing Products:** |
| **1** | * Place unit(s) of frozen plasma in sealable plastic bag.
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| **Step** | **Action** | **Related Documents** |
| **Thawing Products: (continued)** |
| **2** | With the bag holder outside of the plasma defroster, load the bag holder:* Place plasma bag into bag holder with ports and tubing inside the shield. Ensure entire bag is lying flat with the flat side against the temperature window.
* Do not force plasma into holder; it may damage the bag.
* Insert the plastic clamp into place with the “T” (wider prong) pointing away from the shield.
* If the bag is not frozen flat OR the plasma unit has a volume of greater than 300mL, place a piece of paper tape on the outward facing prong of the bag holder strap to over the metal bag holder edge. This will prevent the units from falling out of the bag holder.
 |  |
| **3** | Load the Microwave Defroster* Station 1 = Left Side of thawing chamber
* Station 2 = Back of thawing chamber
* Load the bag holder with the higher volume plasma onto the left side shaft.
* If applicable, load the 2nd plasma onto the back shaft.
* Place the bag holder centered over the probe/arbor shaft.
* Using an extended palm, push the bag holder all the way onto the shaft. The bag holder should “snap” into place.
* *If bag holder fails to snap into place, perform inspection and maintenance*

***Note: Never load an empty bag holder.*** | ARK Microwave Defroster QC and Maintenance |
| **4** | Latch door securely. |  |
| **5** | Wait for flashing lights on display panel to stop flashing.*Display will indicate when to push START.* | Table A: Display Information |
| **6** | Press START. |  |
| **7** | During the cycle, when the first bag is:* At about 15oC, yellow light will flash.
* At 15oC, temperature will display.
* At 20oC, cycle terminates and audible signal sounds.
 |  |
| **8** | When the “Thaw Complete” message is displayed for either station, remove all bag holders from unit:* Gently tug on one side to slightly release the bag holder.
* Pull straight out.
 |  |
| **9** | * Store bag holders on the shelf or counter.
* Leave door open between occasional cycles to allow heat to escape from cavity.
 |  |
| **10** | Plasma may not thaw at the same rate due to:* Differences in volume
* Initial temperature
* Previous history
* Composition
 |  |
| **11** | Complete component preparation. | Preparation of Thawed Plasma  |

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| --- | --- | --- |
| **Step** | **Action** | **Related Documents** |
| **Maintenance and Troubleshooting** |
| **Every Use** | * Check the “snap” action of the bag holder when placed onto arbor shaft.
* If it fails to “snap”, check the plastic rectangular spring on the collar for cracks, splits, or breaks. If so, part must be replaced.
* Check the copper contact spring for burns or arcing. If so, part must be replaced.
* Failure to fully seat the bag holder will result in early shutdown.
* Wipe up spillage immediately.
* Check surface of the door and defroster front when the door is closed. Any dirt can interfere with proper sealing. Clean before proceeding.
 |
| **Starts** | * If the unit is started with warm plasma, within 40 to 45 seconds the unit will self-diagnose and terminate cycle.
 |
| **Precautions** | * Do NOT attempt to use:
	+ A microwave unit with alarm indications, abnormal sounds, abnormal bag holder motions, or arcing (small sparks within the heating cavity)
	+ A dented or damaged bag holder
	+ A plasma bag that does not fit the bag holder properly. If any part of the bag extends past the rim of the bag holder, plasma may not thaw properly.
	+ Bottom of the heating cavity. Plasma placed here will overheat within 1 minute and cannot be used.
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| **Additional Information** | * See ARK Microwave Defroster QC and Maintenance SOP.
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**Table A: Display Information**

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| **Status/Action** | **Display** | **Lights** |
| Turn on main switch | NA | Red and green lights flash briefly |
| Door shut/unit idle | Load Station Press Start | NA |
| Door is open | Door Open | Red light on |
| Unit loaded in preparation to thaw | NA | Red and green lights flash briefly |
| Loading Station 1 | Station 1 Loaded/Station 2 Vacant | Yellow light corresponding to occupied station lights |
| Self-diagnostic and Calibration | Yellow light steady for 40 to 45 seconds |
| Station 1 Cold/Station 2 Vacant | Yellow light is lit |
| 1st occupied station reaches 15oC | Station 1 15oC/Station 2 Vacant | Corresponding yellow light flashes |
| 1st occupied station reaches 20oC | Display flashes alternately:Station 1 20oC/Thaw Complete/Station 2 Vacant | Yellow light is steadyGreen light flashes in sequence with the audible alarm. |
| Door is opened at end of cycle | Temperature displayed | Yellow and green light steady |
| START pressed with empty unit: unit will not start | Station 1 Vacant/Station 2 Vacant | Red and green lights flash momentarily |
| Unknown | Blank | NA |
| Start Error | Red flashing light with audible signal |
| CCW error |
| CW error |
| Door Open error |
| Occupied Error |

**References:**

ARK Plasma Defroster Operating Manual and Educational Package

Standards for Blood Banks and Transfusion Services, Current Edition: American Association of Blood Banks. AABB Press, Bethesda, MD.

Technical Manual, Current Edition: American Association of Blood Banks. AABB Press, Bethesda, MD.