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| **PC900i Platelet Incubator/Rotator Operation and Maintenance** |
| **Purpose** | This procedure provides instructions for processes for the routine quality controls and maintenance of the platelet incubator and rotator platelet storage system used by the Minneapolis Transfusion Service. |
| **Policy Statements** | * The temperature of the platelet incubator shall be record daily.
* Each device used for the storage of blood components shall be verified as part of installation validation and after major adjustments or repairs.
* Quarterly verification shall be performed per posted Equipment Maintenance schedule.
* Parameters selected for verification shall reflect the range of acceptable storage requirements which includes:
1. Storage temperature range of 20-24°C.
2. Continuous gentle agitation to maintain platelet function.
* Acceptable alarm results
	+ Low temperature of activation ≥20.5°C
	+ High temperature of activation ≤23.5°C
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| **Related****Documents** | * [TSf 18.2.1 Mpls Daily QC Form](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/Res/Mplsf/200112.pdf)
* [TSf 17.28.1 Platelet Incubator Alarm Test](http://khan.childrensmn.org/Manuals/Lab/SOP/TS/Res/Sysf/199611.pdf)
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| **Materials** | **Equipment** | **Supplies** |
| Helmer temp.recording charts (P/N 220273) | * NIST certified thermometer
* Helmer Incubator: Model No.PC900i

 Serial No. 984670 Vers. A* Helmer Agitator: Model PF48i

 Serial No. 984544* Transfusion Service address stamp
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| **Procedure** |  |
|  | **Step** | Action |
| Operation Procedure | 1 | Open the door to the chamber. Agitator will stop when door is opened. |
| 2 | Grasp the center of the drawer handle and pull out the drawer, lifting lightly as you pull. Note: If a drawer is difficult to open, gently push it closed and try again, making sure that you are pulling the drawer straight out.Do **not** open the drawer with the label holder, use the drawer lip. |
|  | 3 | Lay the platelet bags flat on the drawer, according to the following guidelines:**►** Avoid stacking bags. Stacked bags may slide off the drawer during agitation.**►** Maintain enough space around each bag for adequate air circulation. For thicker bags, remove drawers to provide extra space.**►** Place the tubing neatly under or around the bag so that it does not obstruct movement of the agitator drawers or storage frames. |
|  | 4 | Apply identifying label with platelet type and expiration date to the label holder. |
|  | 5 | Label the shelf with a piece of white tape indicating the intended recipient’s name if the platelet is on hold for a particular patient. |
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|  | **Step** | Action |
| Daily Quality Control | 1 | Record Digital Controller (1) reading, and the internal thermometer reading on the Daily Equipment Quality Control Logsheet. |
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|  | **Step** | **Action** |
| Weekly: Change the incubator temperature chart on Fridays | 1 | Open the chart door. |
| 2 | Unscrew the chart knob. |
| 3 | Press and hold the **Chart Change button** (3) for approximately one second until the pen begins to move to the left. |
| 4 | Release the button. |
| 5 | Wait until the pen has moved to the edge of the chart. |
| 6 | Remove the old recording chart. |
|  | 7 | Date and initial both the old and new recording charts indicating the digital display temperature reading on both. The back of the chart must be stamped with the Transfusion Service address stamp. |
|  | 8 | Position on the new chart at the corresponding date and time according to the etching. |
|  | 9 | Re-attach the chart knob and screw it securely against the chart. |
|  | 10 | Press and hold the **Chart Change button** (3) for approximately one second until the pen begins to move back. |
|  | 11 | Release the button. |
|  | 12 | Check to make sure the pen is marking on the chart. |
|  | 13 | Place recorded charts on Technical Specialist desk for review. |
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|  | **Step** | **Action** |
| Monthly | 1 | Clean exterior with a soft cloth and non-abrasive liquid cleanser. Do not use paper towels. |
|  | 2 | The door should be cleaned with a soft cloth and window cleaner. |
|  | 3 | Wipe down the interior walls, water drain train and flatbed agitator shelves with a disinfectant cleaner. |
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|  | **Step** | **Action** |
| Quarterly | 1 | Vacuum the black condenser fins located on the upper right side of the unit. |
|  | 2 | Alarm test.1. Turn the platelet rotator off.
2. Locate the alarm thermocouple probe.
3. Fill a small container with water at an approximate temperature of 25°C for verification of the high alarm check.
4. Place the alarm thermocouple in the container of water.
5. Watch for the Alarm **Indicator Light** on the Temperature controller to illuminate when the temperature goes beyond the alarm set point. Note: The audible alarm system will go into a delay mode and should sound after the delay period (8 minutes) have cycled.
6. Record temperature at which the **Indicator Light** illuminated and verify if the audible alarm activated on form alarm testing form.
7. Repeat the above steps with the container filled with water at approximately 18°C for the low alarm check.
8. Record temperature at which the **Indicator Light** illuminates and verify if the audible alarm activates on alarm testing form.

Note:* Refer to the Helmer Platelet Storage System Instrument manual if alarm settings need to be altered.
* Denote “alarm testing” on the chart recorder if temperature fluctuations are recorded.
* Temperature alterations must be made slow enough for the proper alarm activation detection.
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|  | **Step** | **Action** |
| Annually-Calibration of the Digital Temperature controller Display and Chart recorder | 1 | Place the NIST certified thermometer on the top shelf of the rotator inside the chamber and close the door. |
| 2 | Allow the temperature to stabilize for about 30 minutes. |
| 3 | Record the reading of the Display and the NIST certified thermometer on the Thermometer QC form.* Acceptable: ± 1°C of the NIST thermometer.
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| 4 | Record the reading of the Chart recorder reading and the NIST certified thermometer on the Thermometer QC record form.* Acceptable: ± 1°C of the NIST thermometer.
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|  | 5 | Refer to the Helmer Platelet Storage System instrument manual if the temperature controller or chart recorder needs to be recalibrated. |
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|  | **Step** | **Action** |
| As Needed | 1 | Replace the 9-volt DC battery, which serves as a backup of approximately 24 hours for the chart recorder in case of power failure, when the green light on the face of the chart recorder begins “flashing” |
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| **Interpretation** | Acceptable results:* + Low temperature of activation ≥20.5°C
	+ High temperature of activation ≤23.5°C

Take appropriate corrective action if temperatures of activation are too low or too high or if the alarm systems fails to function as expected (does not activate or fails to deactivate.)Corrective actions may include:* Retesting the alarm activation
* Verifying the Alarm key switch is on.
* Checking the battery/power source.
* Verifying the warm and cold alarm set points (Refer to the equipment instrument manual.)
* Contacting engineering or the manufacturer for service.
* Transferring of blood products if the equipment/ alarm is found faulty.

 Record the nature of the corrections on the appropriate QC sheet and necessary repairs on the Equipment Service notebook. |
| **References** | 1. Platelet Storage System Manual, Helmer Labs, INC.
2. Flatbed Agitation System Manual, Helmer Labs, INC.
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| **Approval****Workflow** | Transfusion Service/Technical Specialist |
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| **Historical Record** | **Version** | **Written/Revised by:** | **Effective Date:** | **Summary of Revisions** |
| 1 | D. Oman | 2/10/09 | Initial Version |
| 2 | D. Oman | 1/10/10 |  |
| 3 | S. Cassidy | 4/10/12 | CMS format |
|  | 4. | S. Cassidy | 09/30/2019 | Change alarm activation set points and added interpretation and corrective action steps |