University of Washington Medical Center 1959 NE Pacific Street. Seattle, WA, 98195 Transfusion Services Laboratory Policies and Procedures Manual	Original Effective Date: 06-13-2022 Revision Effective Date:	Number: EQ-0018.01

TITLE: Helmer Freezer Operation & Maintenance

PURPOSE:
To provide instructions on the operations and maintenance of the Helmer Freezer

PRINCIPLE & CLINICAL SIGNIFICANCE:
Plasma and cryoprecipitate are stored frozen at -18^{0}C or colder to help maintain factor activity and provide an extended shelf life. Blood storage devices should be continuously monitored to ensure required temperatures are maintained during product storage. In the absence of continuous monitoring, temperatures should be recorded at least every four hours

Clinical Significance
Blood Components must be stored within strict temperature guidelines to ensure the safety, purity and potency of the product

POLICIES:
- Monitored 24/7 by TempTrak temperature monitoring system
- Quarterly and annual maintenance performed by UWMC Montlake Refrigeration shop
- For any maintenance and service issues call Operations and Maintenance
- Daily temperatures are recorded on the ***Blood Component Storage Temperatures Form***
- Freezers are set to alarm at the following temperatures

Alarm	Temperature
High Alarm	-20.0^{0}C
Low Alarm	-35.0^{0}C

SPECIMEN REQUIREMENTS:
NA

REAGENTS/SUPPLIES/EQUIPMENT:

Reagents	Supplies	Equipment
• Propylene Glycol	• Calibrated Thermometer • Recording Charts • Distilled Water	• Blood Bank Freezers • Remote Alarms and Pagers

QUALITY CONTROL:
Temperatures are verified daily to ensure the acceptable range ≤ -18°C for product storage is maintained.

INSTRUCTIONS:

TABLE of CONTENTS

Periodic Maintenance

<table>
<tr><th>STEP</th><th>ACTION</th></tr>
<tr><td>1</td><td>Perform the following maintenance tasks at the required frequency:
<table>
<tr><th>If performing maintenance</th><th>Then</th></tr>
<tr><td>Quarterly</td><td>• Check temperature calibration on the monitor. Change if necessary
• Clean the condenser grill, and
<table>
<tr><td>Test</td><td>• High and low temperature alarms
• Power failure alarms (as required by UWMC’s protocols)</td></tr>
<tr><td>Inspect</td><td>• Electrical components and wiring terminals in the electrical box for discoloration. If discoloration is found, contact Helmer Technical Service
• All wiring for terminals for secure connection and tighten as necessary</td></tr>
</table></td></tr>
<tr><td>Annually</td><td>Examine the probe bottles. Clean or replace if necessary</td></tr>
<tr><td>As needed</td><td>
<table>
<tr><td>Clean</td><td>• Freezer interior and exterior
• Door gaskets</td></tr>
<tr><td>Test</td><td>• Door alarm (as required by UWMC protocols)
• Ground fault circuit interrupter on the internal outlet (if applicable)</td></tr>
<tr><td>Check</td><td>• Backup battery for the chart recorder after a prolonged power failure and change it if necessary or change the battery if it has been in service for one year. Refer to the Temperature Chart Recorder Operation and Service Manual
• Level of the solution in the probe bottles containing a volume of solution no larger than the smallest unit stored in the device. Freezers: Propylene glycol.</td></tr>
</table></td></tr>
</table></td></tr>
</table>

Installing Temperature Chart Paper

STEP	ACTION
1	Press and hold “C” button.
2	Release button when stylus begins to move to the left. NOTE: LED flashes to indicate current temperature range.
3	Remove chart knob when stylus stops moving. Move the knob up and away
4	Place new chart paper on the chart recorder
5	Lift the stylus gently and rotate chart paper so that the current time line corresponds to the time line grove
6	Hold the chart paper and reinstall the chart knob, verify time line after the chart knob is tightened
7	Confirm temperature range is set to the correct value
8	Press and hold “C”, releasing the button when the stylus begins to move right
9	Confirm stylus is marking temperature correctly

CALCULATIONS/INTERPRETATIONS/RESULTS REPORTING/NORMAL VALUES/CRITICAL VALUES

CALIBRATION:
Calibration of the Circular graph

STEP	ACTION
1	Determine the direction the pen needs to be moved (left or right) to match the internal temperature.
2	Press and hold either the left or right arrow buttons until the stylus begins to move.
3	Release the button when the pen is recording the correct temperature.

NOTES AND LIMITATIONS:

- Replace rechargeable battery if it has been in service for two years

REFERENCES:

- Helmer Scientific Freezer Operation Manual
- Temperature Chart Recorder Operation and Service Manual
- Technical Manual. Bethesda, MD: AABB Press, current edition

RELATED DOCUMENTS:
FORM Blood Component Storage and Temperatures

APPENDICES:
NA

UWMC SOP Approval:			
UWMC CLIA Medical Director	Andrew Bryan, MD	Date	
Transfusion Service Manager	Nina Sen	Date	
QA Manager	Tayler Reeves	Date	
Transfusion Service Medical Director	Monica Pagano, MD	Date	
UWMC Biennial Review:			
		Date	
		Date	