

Cryopreservation Technical Tips

Aluminum Dewars

Elpro Data Logger

In March Chart will be replacing the Elpro Libero Te1-PY data logger to the new Elpro Libero CE logger. Chart will offer the Libero CE logger as an annual data logger and will continue to offer preinstalled options onto the cork/cover for certain tank models. The new Libero CE will also require a new mounting bracket. Chart is projected to ship the new Libero CE logger mid-March.

Specification Comparison

	Libero CE	LIBERO Te1-PY
<u>Temperature range</u>	-200 to + 400	- 200 to +200
<u>Increased memory</u>	75,500	16,000 values
<u>Scenario: logging every 5 min</u>	Logger lasts 265 days	Logger lasts 48 days
<u>Can switch off alarming for refill</u>	Yes	No
<u>IATA approved battery</u>	No Dangerous goods form	Dangerous goods form
<u>needed for air transport</u>		
<u>Certificate of Validation</u>	Available online	Printed
<u>Better connection of sensor/probe</u>	M8 improved fit connection	Wired connection
<u>Additional / Improved Alarm settings</u>	8 alarm levels	6 alarm levels
	<u>Can set MKT alarm</u>	No MKT alarm
	<u>Can be set on shipment duration</u>	No such option
<u>Start-up delay</u>	Can be set on temp or time	Only time delay available

For more information on the Elpro Libero CE please visit the links below:

[Elpro Libero CE - Specification](#)

[Elpro Libero CE – Operating Manual](#)

[Elpro Libero CE – Release Notification](#)



Safety Cryo Kit

This Cryo Safety Kit ensures proper safety when dealing with cryogenics. The Cryo Safety Kit part number is 21487922.

Cryo Safety Kit includes:

Face shield PN AAA3009,
Adj Helmet PN AAA3018,
Long Large Gloves PN 9717159
Cryo Apron PN 10464394.



Safety Corner

➤ Cryogenic Liquid Safety

Liquid Nitrogen Safety

Liquid nitrogen (LN2) is used in Chart Cryogenic Freezers as a refrigerant. Understanding potential hazards and following safety precautions is important when handling LN2 and these freezers. Nitrogen is a colorless, odorless, and tasteless gas that makes up approximately 78.1% of the Earth's atmosphere in its gaseous state. LN2 becomes vapor at temperatures greater than -320.8°F (-196°C). In liquid state, nitrogen has a temperature range from -320.4°F to -346°F (-195.8°C to -210°C).



- Nitrogen vapor is a potential asphyxiant as it displaces Oxygen (O₂) in confined spaces. Rapid suffocation can occur without warning in an Oxygen-deficient atmosphere (less than 19.5% O₂). Chart Cryogenic Freezers must be installed and operated in well-ventilated areas.
- DO NOT vent container in confined spaces.
- DO NOT enter confined spaces where excess nitrogen gas may be present.
- If exposure has occurred move to ventilated area or fresh air. If breathing is difficult, supplement oxygen may be required. If not breathing, give artificial respiration. SEEK IMMEDIATE MEDICAL ATTENTION.



- Contact with liquid nitrogen or uninsulated equipment containing nitrogen can result in cold contact burns or tissue damage. Nitrogen vapor can cause damage to skin or eyes.
- In case of frostbite, warm area with warm water not exceeding 105°F (40°C) and SEEK IMMEDIATE MEDICAL ATTENTION.



- Never place LN2 in a sealed container without a pressure relief device. The expansion ratio of liquid nitrogen to gaseous nitrogen is 1 to 700 (1 cubic foot of liquid nitrogen becomes 700 cubic feet of gaseous nitrogen when evaporated).

Recommended protective clothing



- Cryogenic gloves (loose fitting)
- Full-face shield or chemical splash goggles
- Cryogenic apron
- Long sleeve shirt and cuffless pants
- Closed toe shoes (no sandals)