

CoolCell® Container

Controlled-Rate, Alcohol-Free Cell Freezing



CoolCell® alcohol-free cell cryopreservation products are the standard for reproducible passive controlled-rate cell freezing. When placed in a -80°C freezer, CoolCell® containers will regulate the removal of sample heat at a rate of -1°C/minute, ensuring consistent and reproducible cryopreservation for a variety of cells. The patent-pending CoolCell® technology is used for a variety of cell types, including stem cells, primary cells, PBMC, cell lines, yeast, bacteria, insect cells and others. The CoolCell® freezing method replaces out-dated methods that require isopropanol-based containers. CoolCell® cryopreservation containers perform as well or better than expensive programmable freezers, yet require no programming or maintenance which ensures a more standardized cryopreservation regimen. CoolCell® containers may be used in -80°C freezers or dry ice chambers if mobile cryopreservation is required.

CoolCell® is proven to work with many cell types including:

Stem Cells

Human Embryonic Stem
Preadipocytes
Breast Cancer Stem
Colon Cancer Stem
Glioblastoma Stem
Mouse Embryonic Stem
Human Endothelial
Progenitor

Primary Cells

Neonatal Keratinocytes
Human WBCs
Mouse WBCs
Human CD34+
Muscle
Human Tendon Fibroblasts
Melanoma Tumor
Human Cardiac Ventricular
Human Cardiac Atrial

Cell Lines

CHO
LnCap
HTB77
A549
HeLa

CoolCell® Container



No alcohol

- No fluids
- No pre-cooling
- Saves 12L/unit of IPA per year

No variability

- All vials have uniform freeze rate
- Radially symmetric design ensures vial consistency

No on-going cost

- No alcohol purchase or disposal

No stuck lids

- Ergonomic lid comes off easily when frozen
- Not cold to the touch when removing from the -80°C freezer

Quick re-use time

- Ready to use again after five minutes

Isopropanol (IPA) Container



Requires isopropanol

- Replace alcohol every 5 uses
- Track numbers of uses
- Pre-cool alcohol in refrigerator

Inconsistent freeze rate

- Alcohol degradation induces variability
- Two circles of wells; two freeze rates

Approximately \$ 350/year

- Change alcohol weekly
- Dispose of hazardous waste

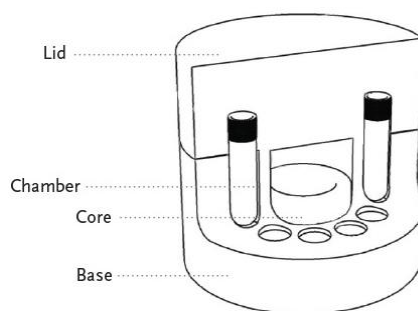
Difficult to handle and open

- Screw cap difficult to remove when frozen
- Frozen unit is slippery and cold to touch

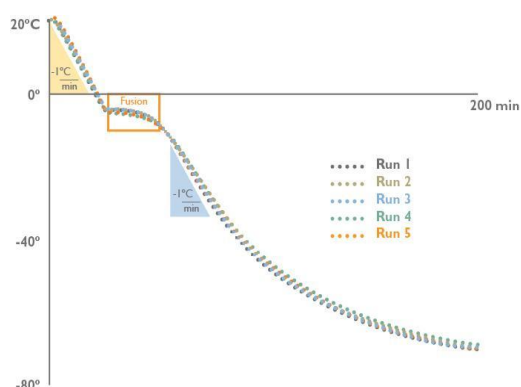
Wait between runs

- Takes > 1 hr for alcohol to warm-up

HOW IT WORKS



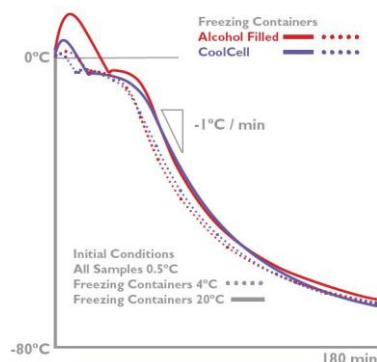
A CoolCell LX container, in combination with a -80°C freezer, will provide the freezing rate of -1°C/minute that is ideal for cryopreservation of most cells and cell lines. The container uses a combination of uniform-density cross-linked polyethylene insulative foam, a metal alloy core ring, and radial vial symmetry. As a result, freezing profiles are consistent from one run to the next. It is important to fully load CoolCell containers prior to freezing. The CoolCell LX container foam retains very little heat which ensures that the container will impose negligible change in the freezer environment and protect nearby frozen samples. The low heat content also ensures that CoolCell LX containers will rapidly return to room temperature for another freezing cycle.



CoolCell® Freezing Profile Consistency

Performance test: A temperature probe was placed into a 2.0 mL cryogenic vial containing 1.0 mL of water and the tube was inserted into a CoolCell® sitting at room temperature. The CoolCell was then placed directly into a -80°C freezer and the temperature rate and profile was observed over a 3 hour period. This experiment was repeated 5 consecutive times and temperature profiles were recorded.

Conclusion: BioCision's CoolCell controlled-rate cell freezing module showed identical fusion time and cooling profiles over five consecutive freeze cycles.



CoolCell® vs. Alcohol-filled Container Freezing Profile

Performance test: In an attempt to characterize the time lag and temperature rise of samples undergoing the freezing step, the following experiment was performed using a standard alcohol-filled freezing container and an insulated low-thermal mass cell freezing container (CoolCell). These two containers were continuously monitored for sample temperature in both room temperature and pre-chilled starting conditions.

Conclusion: In both starting conditions the alcohol-filled system warmed the pre-chilled samples more and longer than CoolCell before freezing overtakes initial sample temperature. The insulated CoolCell cryopreservation module had significantly lower heat stress on the samples and this will improve sample viability.

OUR PRODUCTS

CoolCell® LX	Cell freezing container for 1.0 mL or 2.0 mL cryogenic vials. Numbered wells and exposed vial tops for quick vial removal. Holds 12 vials.
CoolCell® FTS30	High-capacity cell freezing container for 1.0 mL or 2.0 mL cryogenic vials. Holds 30 vials.
CoolCell® 5ml LX	Cell freezing container for 3.5 mL to 5.0 mL cryogenic vials. Numbered wells and exposed vial tops for quick vial removal. Holds 12 vials.
CoolCell® SV2	Cell freezing container for 2.0 mL injectable serum vials. Holds 12 vials.
CoolCell® SV10	Cell freezing container for cell therapy vials. Holds 6 vials.
CoolCell® SV2 Stem Cell Cryopreservation System	Item No. BCS-172CS, Ice-free cell preparation and controlled-rate cryopreservation
CoolCell® SV10 Stem Cell Cryopreservation System	Item No. BCS-262CS, Ice-free cell preparation and controlled-rate cryopreservation