

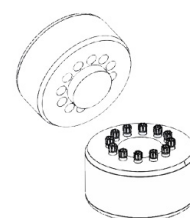
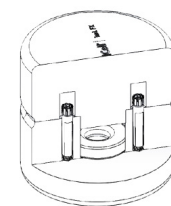
# Cell Freezing Containers for 12 x 1mL 96-format Sample Tubes



## Controlled-rate cell freezing container

### Quick Start

- The 12 chambers and 1ml tubes should be dry to avoid vials sticking upon freezing.
- Make sure the core (black ring) is at room temperature and seated in the bottom of the central cavity.
- Place sample vials containing up to 1ml of cell suspension in each well. Each well should contain a filled vial. If the freezing batch is fewer than 12 vials, fill each empty well with a vial that contains an equivalent volume of freezing media.



*Note: Cell suspensions can be inserted into a room temperature cell freezing container and successfully preserved. For optimal results, the Cell Freezing Containers for 12 x 1mL 96-format Sample Tubes should be at the same temperature as your cell suspensions.*

- Check that the tubes slide in and out freely.
- Fully seat the lid on the cell freezing container.
- Place the cell freezing container upright into a  $-80^{\circ}\text{C}$  freezer or dry ice locker. Ensure that there is at least one inch of free space clearance around the cell freezing container.
- Freeze for at least four hours before transferring samples to archive storage.

### Transferring Frozen Samples to Archive Storage

- Prepare an insulated pan or container with a one inch (2.1cm) layer of pulverized or pellet dry ice.
- Remove the cell freezing container from the freezer and gently remove the lid using a gentle twist.
- The vial tops will be exposed once the lid is removed and vials should be quickly extracted and placed onto the dry ice.

### Special Notes

- Always use dry ice, a cryo dewar or cryo-cart to transfer cryovials containing cells to permanent storage to avoid temperature rise and cell damage. Cryogenic vial contents can rise from  $-80^{\circ}\text{C}$  to over  $-10^{\circ}\text{C}$  in less than one minute if exposed to room temperature air.
- It is strongly recommended that all frozen cell cultures be checked for viability before the stock culture is terminated.



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## Recycling the Cell Freezing Container to Room Temperature

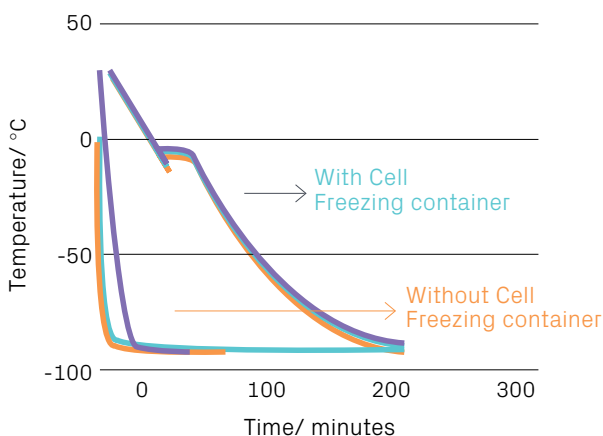
The cell freezing container is ready to freeze again as soon as the foam body and core (black ring) are at room temperature. To rapidly recycle the cell freezing container to room temperature, remove the center solid-core ring. The cell freezing container body and lid will return to room temperature in 10 to 11 minutes. Check that all chambers are dry. Dry the core ring before re-inserting into the central chamber.

## About Cell Freezing Containers for 12 x 1mL 96-Format Sample Tubes

The Cell Freezing Container for 12 x 1mL 96-format Sample Tubes, in combination with a  $-80^{\circ}\text{C}$  freezer or dry ice locker, will provide the freezing rate of  $-1^{\circ}\text{C}$  per minute that is ideal for cryopreservation of most cultured cell lines. The cell freezing container design uses a combination of insulation foam, radial symmetry, and a heat transfer core to regulate heat loss rather than using a large thermal mass (alcohol-based freezing container). As a result, freezing profiles are extremely consistent from one run to the next. Also, because of this low thermal mass, the cell freezing container will not cause a rise in local freezer temperature and will protect nearby samples already stored in the freezer. Low thermal mass also means the cell freezing container will rapidly return to room temperature for another freezing cycle (see fast recycle instructions).

### Cell Freezing Container 1ml Thermal Profile

Cell Freezing Containers for 12 x 1mL 96-format Sample Tubes



## Cell Freezing Container Freezing Performance

The cell freezing container will freeze 12 tubes each containing 1.0 mL of cell suspension at  $-1^{\circ}\text{C}$  per minute when placed in a  $-80^{\circ}\text{C}$  environment (mechanical freezer or dry ice locker). A vial load greater than or lower than 1.0ml will slightly decrease or increase, respectively, the freezing rate of the vial contents as shown in the thermal profile on the graph (left). The graph shows latent heat phase where the cell freezing container protects samples from rapid freezing which affects sample viability.





# Cell Freezing Containers for 12 x 1mL 96-format Sample Tubes

## Troubleshooting

Problem	Solution
Vials do not freely fit in the chambers	Cell Freezing Containers for 12 x 1mL 96-format Sample Tubes is designed to fit standard screw-top 1.0 mL storage tubes up to 12mm in diameter and up to 58mm in height. Check that flag style labels, if used, will not bind and hinder insertion or removal.
Vials are stuck in cell freezing container after freezing	It is likely moisture was in the vial chambers or on the sample vial prior to freezing. Remove the core (black ring) and tap the Cell Freezing Containers for 12 x 1mL 96-format Sample Tubes container to dislodge vials.
The lid does not fully seat	Ensure that sample tubes are fully seated in the chamber. The maximum height of the tube is 58mm.

## Care and Cleaning

The Cell Freezing Containers for 12 x 1mL 96-format Sample Tubes is constructed of closed cell cross-linked polyethylene foam and a solid thermo-conductive core. The cell freezing container is compatible with prolonged cryogenic temperature exposure. The foam may be cleaned by water and mild soap. Rinse and dry thoroughly. The cell freezing container is resistant to alcohols and 10% bleach solutions. Do not autoclave. Maximum temperature exposure: 60°C. Avoid prolonged exposure to UV light sources.