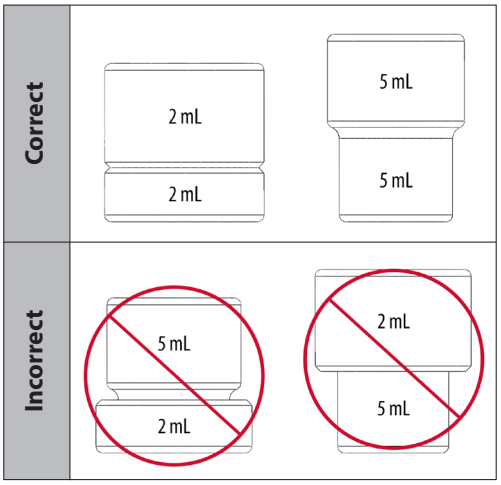
COOK® REGENTEC

CELLSEAL® Freezing Container

User Guide

Quick Start



1. Ensure that the twelve vial wells and CellSeal Closed-System Cryogenic Vials are dry to prevent the vial body from sticking during freezing.
2. Make sure that the foam body and the core (black ring) are at room temperature and the core is seated in the bottom of the central cavity.
3. Ensure that the units have lids and bases that are correctly associated as in diagram to the right. Place a CellSeal Closed-System Cryogenic Vial containing sample in each well.

NOTE: Each well is intended to contain a filled vial. If the freezing batch is fewer than twelve vials, fill each empty well with an appropriate CellSeal Filler Vial (2 mL vial, part number CFV-002 or 5 mL vial, part number CFV-005). See Filler Vial section at the end of the User Guide for proper maintenance of the Filler Vials. Alternatively, CellSeal Closed-System Cryogenic Vials that contain an equivalent volume of freezing medium without cells can be used to fill empty wells.

4. Check that the vials slide in and out freely.
5. Fully seat the lid on the Freezing Container. If a test sample segment is included in the long tubing, a twisting motion may be used to ensure all sample segments are positioned in the hollow space of the lid.
6. Place the Freezing Container upright into a -80˚C environment. Ensure that there is at least 2.5 cm of clearance around the Freezing Container.
7. Allow Freezing Container to freeze for at least four hours before transferring samples to long term storage.

Transferring Frozen Samples to Storage

NOTE: Transfer of CellSeal Closed-System Cryogenic Vials to storage should be done using established procedures that minimizes temperature rise.

1. Remove the Freezing Container from the freezer and remove the lid using a gentle twisting and rocking motion.

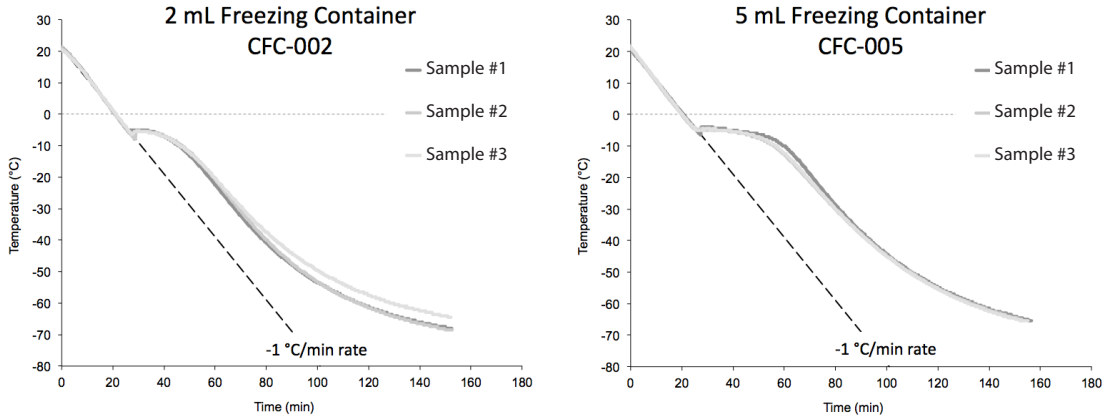
NOTE: Protective gear such as cryogenic gloves may be used to avoid cold burn.

2. The tops of the CellSeal Closed-System Cryogenic Vials will be exposed once the lid is removed. Quickly remove the CellSeal Closed-System Cryogenic Vials and transfer them per end user specific instructions.

IMPORTANT: Temperature of sample can rise from -80°C to over -50°C in less than one minute if exposed to room temperature air. Always use handling process that minimizes temperature rise to avoid potential alteration in sample quality.

Recycling CellSeal® Freezing Container to Room Temperature

The Freezing Container is ready to freeze again as soon as the foam body and core (black ring) are at room temperature. Check that both the vial wells and central area with core ring are dry.



CellSeal® Freezing Container Freezing Performance

Three calibrated thermocouples were inserted into the liquid in three CellSeal Closed-System Cryogenic Vials containing typical cryopreservative with 10% DMSO at the optimal fill volume for each model (1 mL for the 2 mL unit and 3.5 mL for the 5 mL unit). The vials were then added to a CellSeal Freezing Container with nine other filled vials. The CellSeal Freezing Container was then placed directly into a dry ice locker, and the temperature rate and profile were recorded over a three-hour period. This experiment was repeated on three

different CellSeal Freezing Containers. The freezing performance shown above is representative of a specific fluid type and fill volume and does not guarantee performance under other conditions. The user must test and qualify use of the Freezing Container for their particular application.

Conclusion: The CellSeal Freezing Container enabled freezing rates at approximately -1°C/min pre- and post-phase change plateau.

Troubleshooting

Problem	Solution
Vials do not freely fit in the wells	CellSeal Freezing Container is designed to fit CellSeal Closed-System Cryogenic Vials. Check that labels, if used, will not bind and hinder insertion or removal.
Vials are stuck in Freezing Container after freezing	It is likely moisture was in the vial wells or on the sample vial prior to freezing. Tap the CellSeal Freezing Container to dislodge vials.
The lid does not fully seat when vials are present in wells	Ensure that the CellSeal Closed-System Cryogenic Vials' test sample segments are fully seated in the hollow space of the lid and folded towards the center of the Freezing Container. Refer to the CellSeal Closed-System Cryogenic Vial User Guide for instructions on how to seal the tubing.

Care and Cleaning

The CellSeal Freezing Container is constructed of closed-cell cross-linked polyethylene foam and a thermoconductive core. All components are compatible with prolonged cryogenic temperature exposure. The foam may be cleaned by water and mild soap. Rinse and dry thoroughly. The CellSeal 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.

CellSeal® Filler Vials

CellSeal Filler Vials are for use in CellSeal Freezing Containers only. Place CellSeal Filler Vials in all empty wells if the freezing batch is less than twelve vials to ensure the desired freezing rate of approximately -1°C/minute is achieved. Filler Vials may be used repeatedly. Allow Filler Vials to fully thaw and return to room temperature before reuse. Do not open Filler Vials and adjust volume. Filler Vials may be gently cleaned with alcohol. Filler vials with evidence of contamination (i.e., solid material noted within vial, or solution is cloudy), or evidence of spillage/reduced content volume should be replaced immediately with a new filler vial. Contents include: glycerol.

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2016-09
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