

Smart Notes

QA

How can I maintain sterility while spending less time on cell culture harvest steps?

When harvesting and separating smaller volume pilot-scale cultures, multiple manipulation and transfer steps in the open workflow may invite the risk of contamination. A novel closed workflow, using sterilized, single-use Thermo Scientific™ CentriPAK™ BioProcess Containers (BPC) and the Thermo Scientific™ Sorvall™ BIOS 16 Centrifuge, reduces these sources of contamination to protect sample integrity. As the CentriPAK BPC method also eliminates pre-setup and post-cleaning steps, it requires less overall processing time so that downstream steps may be taken more quickly.

The CentriPAK BPC chambers are gamma irradiated and offer weld-on or quick-connect fittings for enhanced convenience. The chambers may be joined through a BPC manifold so that all chambers are filled at once. BPC adaptors provide stability for the chambers during filing and also fit into 8 x 2000 mL or 6 x 2000 mL oval swinging bucket rotors used in the BIOS 16 Centrifuge. In this example, we compare a traditional open system to the closed, sterilized CentriPAK BPC method when harvesting a 3L mammalian cell culture.



Thermo Scientific™ CentriPAK™ BPC Single

Open System Bottle Method
Total time: 79 minutes

Fill

21 minutes

- Weld-on biocontainer to single-use bioreactor (SUB) or other culture vessel
- Transfer contents from vessel to biocontainer
- Seal biocontainer and transfer to biosafety cabinet (BSC)
- Place receiving bottle inside BSC
- Pressurize biocontainer and fill bottle to predetermined weight or volume
- Repeat with second bottle
- Close bottles



Centrifuge

20 minutes

- Centrifuge bottles



Separate

37 minutes

- Transfer centrifuged bottles to BSC
- Transfer clarified supernatant to biocontainer
- Add buffer to bottle
- Resuspend cell pellet
- Pour resuspended cell pellet into biocontainer
- Clean and sterilize bottle
- Proceed to next step (or store)

Closed System CentriPAK BPC Method
Total time: 45 minutes

Fill

11 minutes

- Connect sterilized CentriPAK BPC
- Single chambers, joined via manifold, to SUB or other culture vessel
- Open clamps to fill CentriPAK BPC chambers
- Close clamps and disconnect CentriPAK BPC chambers from vessel



Centrifuge

20 minutes

- Centrifuge CentriPAK BPC chambers



Separate

14 minutes

- Connect BPC chambers to Labtainer
- Open clamps and start pump to separate supernatant from pellet
- Disconnect BPC chambers from Labtainer
- Add buffer to resuspend cell pellet inside BPC chambers
- Proceed to next step (or store)

Find out more at thermofisher.com/centriPAK