

Long-Term Shutdown Quick Reference Guide

Overview

This guide contains instructions for performing a long-term shutdown for the following BD flow cytometers.

- BD Accuri™ C6, C6 Plus and BD FACSVia™ Cytometers
- BD FACS™ Lyse Wash Assistant Systems
- BD FACS Aria™ Family of Cell Sorters
- BD FACSMelody™ Cell Sorters
- BD FACSCalibur™ Cytometers
- BD FACS™ Sample Prep Assistant Systems
- BD FACSCanto™ Family of Cytometers
- BD Influx™ and BD FACSJazz™ Cell Sorters
- BD FACSLyric™ and BD FACSVerse™ Cytometers
- BD LSRFortessa™, BD FACSCelesta™ and BD FACSsymphony™ Family of Cytometers

General Recommendations

Perform these procedures when shutting down your instrument for more than one week.

When shutting down an instrument for long term-storage, perform standard cleaning or decontamination procedures and leave the instrument in deionized (DI) water or the recommended storage solution.

For any system, we recommend

- Use absolute ethanol, freshly diluted down to 70%. Do not use denatured ethanol or any methanol-containing fluids in your cytometer.
- Use freshly diluted 10% bleach for maximum efficacy.
- Use sterile deionized water, not distilled.
- Where noted, use filters that are dedicated for the specific fluid.
- Dispose of all liquid waste according to your standard biohazard protocols.

When starting up your system after long-term storage, replace fluidic filters and reconnect lines that have been disconnected and flush with the appropriate sheath fluid.

BD Accuri C6, C6 Plus, and BD FACSVia Cytometers

- 1 Perform a SIP clean using 2 mL of BD FACS™ Clean Solution, followed by 2 mL of DI water.
- 2 Remove the fluid bottles and rinse thoroughly with DI water.
- 3 Refill all 3 bottles with DI water.
- 4 Start up the cytometer and then shut it down (2 cycles).

For more information, see the Maintenance chapter in the *BD Accuri C6 Plus System User Guide*.
Procedure: **SIP Clean, Starting up the system, Shutting down the system.**

For more information, see the Maintenance chapter in the *BD FACSVia Instructions for Use*.
Procedure: **SIP Clean, Starting up the system, Shutting down the system.**

BD FACSAria II, III, Fusion, and BD FACSymphony S6 Cell Sorters

- 1 Refill each 5-L tank with the appropriate cleaning solution, using fresh 10% bleach, 70% ethanol, and sterile DI water.
- 2 Perform a Prepare for Aseptic Sort cleaning mode.
 - Select **Cytometer > Cleaning Modes > Prepare for Aseptic Sort** and follow the on-screen prompts to thoroughly clean all lines.
 - When the procedure is complete, install a tube of sterile, filtered DI water on the loading port and clean the flow cell.
- 3 Replace bleach in the tank and lines with DI water.
 - Empty the 5-L bleach tank and refill with sterile DI water.
 - Connect the tank and select **Cytometer > Prime After Tank Refill** and select **Bleach** to clear bleach from the lines.

For more information, see the Maintenance chapter in the *BD FACSAria II, III, BD FACSAria Fusion* or *BD FACSymphony S6 User Guide*.

Procedure: **Prepare for Aseptic Sort**

BD FACSCalibur Systems

- 1 Run a monthly cleaning procedure.
 - Fill a spare reservoir with 1-2 liters of 10% bleach and install in the fluidics drawer in place of the sheath fluid reservoir.
 - Bypass the sheath filter. NOTE: Do not run bleach or detergent through the sheath filter.
 - Disconnect the top of the sheath filter tubing from the filter port and replace it with the sheath tubing from the spare reservoir.
 - Install and run a tube containing 3 mL of 10% bleach on the SIP and run on HI for 20-30 minutes.
 - Replace the bleach reservoir with a reservoir containing deionized (DI water) and run a tube of DI water for 20-30 minutes.
- 2 Leave the filter bypass in place and DI water in the fluidics system until you are ready to use the cytometer again.

For more information, see the Maintenance chapter in the *BD FACSCalibur Instructions for Use (IFU)*.

Procedure: **Decontaminating the Fluidics**.

BD HTS option

- 3 If you have the BD HTS option, flush the HTS with DI water.
 - Loosen the positioning screw underneath the support bracket and pull the HTS slightly forward until you can access the connections on the back of the unit.
 - Disconnect the sheath line on the back of the HTS.
 - Connect the purge line to the sheath connection on the HTS and place the other end in a beaker of DI water.
 - Place the cover back on the HTS and select **HTS > Prime**.
 - Repeat the HTS prime 9 times to completely fill the HTS with DI water.

Leave the HTS with DI water in the lines and turn off the system.

For more information, see the Maintenance chapter in the *BD High Throughput Sampler User Guide*.

Procedure: **Placing the HTS in Long-Term Storage**.



BD FACSTFlow™ Supply System

- 4 If you have the BD FACSTFlow supply system, rinse the tanks and lines with DI water.
 - Empty and rinse the plenum and fill with DI water.
 - Remove the probe from the 20-L sheath container and place in a tall graduated cylinder full of DI water.
 - Press and hold the prime button on the BD FACSTFlow supply system for 20 seconds to flush the lines with DI water.
 - Empty the plenum and let it dry.

For more information, see the System Overview chapter in the *BD FACSTFlow Supply System* for a description of each component.

BD FACSCanto II and 10-color Configuration Systems

- 1 If you have the BD HTS option, connect the HTS sample coupler to the SIT and close the HTS door.
- 2 Refill fluids and empty waste, if needed, and then select **Cytometer > Long Clean**.
- 3 When the long clean is complete, run a fluidics shutdown and turn off the system.
- 4 Wipe down the SIT and aspirator arm with DI water.

For more information, see the Maintenance chapter in the *BD FACSCanto II* or *BD FACSCanto 10-color Instructions for Use*. Procedure: **Decontaminating the Fluidics System for Storage**.

BD FACSLyric and BD FACSVerse Systems

- 1 Select **Cytometer > Monthly Clean** to start the monthly clean procedure.
 - Follow the instructions in the **Monthly Clean** dialog.
- 2 Stop when you reach the step that instructs you to refill the sheath tank with sheath fluid, and refill the sheath tank with DI water or BD FACS Shutdown Solution.
- 3 Complete the procedure in the **Monthly Clean** dialog, but leave the sheath filter bypass line in place.
- 4 Wipe down the exterior surfaces with a 10% bleach solution, then wipe them down again with DI water.

For more information, see the Maintenance chapter in the *BD FACSLyric* or *BD FACSVerse Reference System*. Procedure: **Preparing for long-term shutdown**.

BD FACS Lyse Wash Assistant

- 1 Empty the waste tank of any ammonium chloride waste and rinse with water.
- 2 Run a **Wash Only** protocol.
 - Install 3 tubes of 10% bleach into positions 1-3 on the carousel.
 - Install 3 tubes of DI water into positions 4-6 on the carousel.
 - Select **Wash Only**.
- 3 Empty and rinse all tanks and fill with DI water.
- 4 Run a **Duo-Lyse** protocol with empty tubes to flush the system with DI water.
 - Install 10 empty tubes into positions 1-10 on the carousel.
 - Select **Duo-Lyse**.
 - Remove rack after processing is complete.
- 5 Shut down the instrument and empty, rinse and air dry all the tanks. Wipe down all exposed surfaces with 10% bleach followed by DI water.

For more information, see the Maintenance chapter in the *BD FACS Lyse Wash Assistant User Guide*.
Procedure: **Daily Maintenance and Shutdown**.

BD FACSMelody Cell Sorters

- 1 Add at least 2.5 L of 70% ethanol to the sheath tank (or extra tank if purchased).
NOTE: Do not use tanks from a different system. Only use tanks provided with the BD FACSMelody System.
- 2 On the Cytometer page of the software, select **Long-Term Shutdown** and complete the steps in the wizard.
- 3 Power off the system and computer.
- 4 Perform an extended fluidics startup when you resume using the cell sorter.

The screenshot displays the BD Cytometer software interface. On the left, a navigation menu includes 'EXPERIMENTS', 'CYTOMETER', and 'USERS'. The main area is titled 'STARTUP / SHUTDOWN' and contains three panels: 'System Startup', 'Daily Shutdown', and 'Long-Term Shutdown'. The 'Long-Term Shutdown' panel is highlighted with an orange border and contains the following text: 'Removes sheath fluid from the lines, fills the lines with 70% ethanol, and drains the flow cell. Run this procedure when the cytometer will not be used for more than two days. Last Run: 04/04/2017 2:20 PM'. Below this, a detailed 'Long-Term Shutdown' procedure is shown, consisting of five numbered steps: 1. Long-Term Shutdown, 2. Closed-Loop Nozzle (Insert the closed-loop nozzle), 3. Waste Tank (Empty the waste tank), 4. Ethanol (Empty the sheath tank and add at least 2.5 L of ethanol. Install the ethanol filter), and 5. DI Water (Load a clean tube with 3 mL of sterile deionized water). A note on the left of the procedure states: 'This procedure takes about 5 minutes to complete.'

For more information, see the System startup and shutdown chapter in the *BD FACSMelody User Guide*.
Procedure: **Shutting down the system, Run Extended Fluidics Startup**

BD FACS Sample Prep Assistant (SPA) II and III Systems

- 1 Perform a weekly cleaning procedure.
 - Select **Instrument > Clean > Weekly Clean**.
 - Place a vial containing 60 mL of BD FACSClean Solution or 10% bleach in well R25 on the reagent rack.
 - When prompted, clean the Z-rack with 70% ethanol.
 - Select **Instrument > Home** to return the probe to the wash station.
- 2 Clean the waste in-line filter assembly.
- 3 Prime the instrument with DI water.
 - Empty all tanks except for the waste tank and fill with DI water.
 - Select **Instrument > Prime**.
- 4 Shut down the instrument.
- 5 Empty and rinse all tanks except the BD FACSTow Cubitainer and wipe down all exposed surfaces with 10% bleach followed by DI water.

For more information, see the Shutdown and Maintenance chapter in the *BD FACS Sample Prep Assistant III User Guide*.
Procedures: **Weekly Cleaning** and **Monthly Servicing of Waste In-Line Filters**.

BD Influx and BD FACSJazz Systems

- 1 Clean the sample line.
 - Run a tube of 10% bleach for 5 minutes.
 - Run a tube of DI water for 5 minutes.
- 2 Rinse the system with DI water.
 - Fill the debubble reservoir with DI water and install it under the nozzle tip.
 - Fill the sheath tank with 1 L of DI water.
 - Press **Rinse and Backflush** to rinse all fluid lines with DI water until the tank runs dry.
- 3 Dry the fluidics lines.
 - Remove the nozzle tip and place the flush bucket under the nozzle.
 - Disconnect the sheath and air lines from the sheath tank and connect them to each other.
 - Press **Rinse and Backflush** to run air through the system for 10-15 minutes.
- 4 Clean the sort chamber with DI water and turn off the system.

For more information, see the System Workflow chapter in the *BD Influx* or the *BD FACSJazz User Guide*.
Procedure: **System Shutdown Workflow**.

BD LSRFortessa, BD LSRFortessa X-20, BD FACSCelesta and BD FACSymphony Systems

- 1 Run a system flush.
 - Bypass the sheath filter.
 - Run BD FACSClean Solution or 10% bleach through the sheath and sample pathway on high for 30 minutes.
 - Run BD FACSRinse Solution through the sheath and sample pathway on high for 30 minutes.
 - Run DI water through the sheath and sample pathway on high for 30 minutes.

- 2 Leave the system with DI water in the lines and a tube of DI water on the SIP.

For more information, see the Maintenance chapter in the *BD LSRFortessa*, *BD LSRFortessa X-20*, *BD FACSCelesta*, or the *BD FACSymphony User Guide*.

Procedure: **Flushing the System**.

BD HTS option

- 3 If you have the BD HTS option, flush the HTS with DI water.
 - Disconnect the sheath line on the back of the HTS.
 - Connect the purge line to the sheath connection on the HTS and place the other end in a beaker of DI water.
 - Place the cover back on the HTS and select **HTS > Prime**.
 - Repeat the HTS prime 9 times to completely fill the HTS with DI water.

- 4 Leave the HTS with DI water in the lines and turn off the system.

For more information, see the Maintenance chapter in the *BD High Throughput Sampler User Guide*.

Procedure: **Placing the HTS in Long-Term Storage**.

BD FACSFlow Supply System

- 5 If you have the BD FACSFlow Supply System, rinse the tanks and lines with DI water.
 - Empty and rinse the plenum and fill with DI water.
 - Remove the probe from the 20-L sheath container and place in a tall graduated cylinder full of DI water.
 - Press and hold the prime button on the BD FACSFlow supply system for 20 seconds to flush the lines with DI water.
 - Empty the plenum and let it dry.

For more information, see the System Overview chapter in the *BD FACSFlow Supply System* for a description of each component.

This material is for training purposes.
For Research Use Only. Not for use in diagnostic or therapeutic procedures.
23-22571-00

BD Life Sciences, San Jose, CA 95131, USA

bdbiosciences.com

BD, the BD Logo, BD Accuri, BD FACS, BD FACS Aria, BD FACSCalibur, BD FACSCanto, BD FACSCelesta, BD FACSFlow, BD FACSJazz, BD FACSLyric, BD LSR Fortessa, BD FACSMelody, BD FACSymphony, BD FACSVerse, BD FACS Via and BD Influx are trademarks of Becton, Dickinson and Company or its affiliates. ©2020 BD. All rights reserved.

