

Simoa® HD-X Analyzer Monthly User Maintenance

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1 Overview

This guide provides instructions for performing monthly user maintenance on the Simoa HD-X Analyzer.

For information on using the Analyzer, see the *Simoa HD-X Analyzer User Guide*.



CAUTION! Monthly maintenance and waste removal procedures put the user in close contact with biohazard materials. Proper personal protective equipment (PPE) should be worn at all times to meet the level of biohazard materials used.

2 System Fluid Container Cleaning and Tubing Rinse

Once a month, the fluid resource containers must be cleaned. The tubing from the containers into the system must be primed with water with the Monthly Fluid Prime task before they are primed with buffer with the Monthly Fluid Prime task.

During this procedure, discard all fluids and rinsates according to your company's waste disposal policies.

DI water and wash buffer 1 each have two containers, which are defined as follows:

- **Secondary Container** – This is the removable container with a screw cap where new fluid is added. The wash buffer 1 and DI water secondary containers are identical in size.
- **Primary Container** – This is the pyramidal-shaped container behind the secondary containers. The liquid level sensor and tubing are connected through a screw cap on top.

Wash buffer 2 only has one container, which sits between the DI water and wash buffer 1 secondary containers. It has a screw cap for adding new fluid, a liquid level sensor, and a fluid port that connects directly to the instrument tubing.

The tubing leading to the sensor cap is color coded as follows:

- **Blue** – DI water
- **White** – Wash buffer 1
- **Yellow** – Wash buffer 2

! **NOTE!** Do not attempt to perform this procedure when an assay is running. The procedure involves disconnecting the fluid containers, which will prevent the instrument from obtaining the system fluids that are required to perform the assay.

Secondary Container and Primary Container Cleaning

- 1 Close the Simoa HD-X Analyzer software and shut down the instrument.
- 2 Remove the wash buffer 2 container and the secondary containers.
 - **DI water and wash buffer 1** – Lift the container up and then pull out.



- **Wash buffer 2** – Disconnect the sensor and fluid port and then lift the container up.



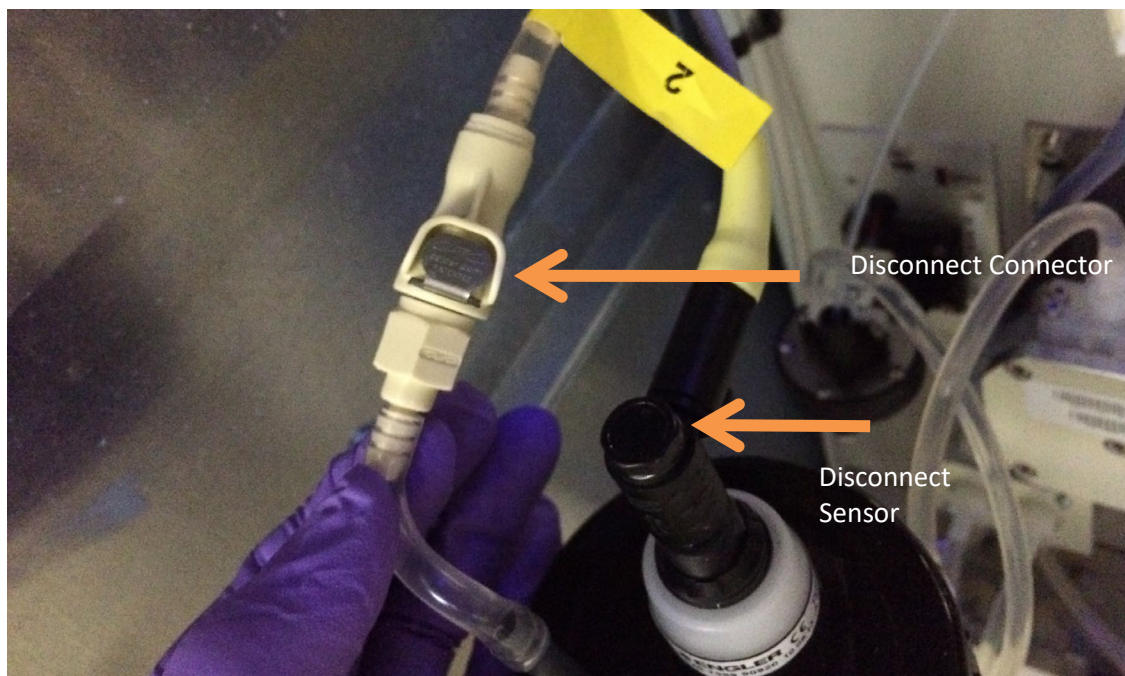


- 3 Empty and dispose of all secondary and wash buffer 2 container fluids.



NOTE! Cross-contamination of the wash buffers may result in poor assay performance. Care should be taken during this procedure to prevent cross-contamination. Do not reuse the fluids after emptying the containers. Reuse of wash buffers has been associated with a reduction in data quality.

- 4 Remove all primary containers. The process is the same for each fluid type:
 - Disconnect the sensor by pulling the black connector up.



- Press the metal button on the quick disconnect fitting to detach the two ends of the liquid line.
- Remove the primary container by pulling forward and then up.



- Unscrew the black cap and place on a clean lint-free paper towel.



- 5 Empty and dispose of all primary container fluids.
- 6 Wash all fluid containers (primary, secondary, and wash buffer 2) by triple-rinsing them with DI water. For each rinse, fill the containers to approximately 1/3 of their total capacity with DI water and shake to rinse all surfaces.
- 7 Clean the liquid level sensors by running under DI water.

Priming the System with DI Water

- 1 Fill the containers with DI water as follows. Do not fill the secondary wash buffer 1 container.
 - **DI primary** – Full
 - **Wash buffer 1 primary** – Full
 - **Wash buffer 2** – Half full
 - **DI secondary** – Half full
- 2 Replace the sensor caps for the DI water and wash buffer 1 primary containers. If they have been separated from the containers, identify the caps by the physical differences in the tubing. DI water uses blue tubing, wash buffer 1 uses white and wash buffer 2 uses yellow.



- 3 Replace the primary containers (DI water, wash buffer 1), wash buffer 2 container, and DI water secondary container into the instrument. The wash buffer 1 secondary container shall remain out of the instrument.
- 4 Reconnect the sensor cable and the fluid tubing together. Remember that the DI water container uses blue tubing, wash buffer 1 uses white, and wash buffer 2 uses yellow to ensure proper container connections.
 - Connect the two ends of the quick disconnect fitting. You will hear an audible click sound.
 - Connect the electrical connector into the top of the primary container lid, making sure the tab on the cable is well-aligned with the slot in the lid. You will hear an audible click sound.
- 5 Turn on the instrument and open the Simoa HD-X software.
- 6 After initialization completes, run the Monthly Fluid Prime task. This step takes approximately 30 minutes to complete.
 - a. Touch the Maintenance Tab, then touch the Monthly Fluid Prime task checkbox.
 - b. Touch **Run Task**. The task window has a timer that indicates when the task will complete.
- 7 Close the Simoa HD-X software and shut down the instrument.

Priming the System with Wash Buffer



NOTE! Cross-contamination of the wash buffers may result in poor assay performance. Care should be taken during this procedure to prevent cross-contamination.

- 1 Disconnect and remove the wash buffer 1 primary container, wash buffer 2 container, and the DI secondary container. Do not remove the DI water primary container.
- 2 Unscrew the black cap of the wash buffer 1 primary container and place it and the liquid level sensor on a clean lint-free paper towel.
- 3 Empty the remaining water out of the containers.
- 4 Replace the wash buffer 1 primary container while it is still empty. Screw the sensor cap back on and connect the tubing and sensor again. Refer to the earlier instructions for detail.
- 5 Fill the secondary containers/wash buffer 2 container with the following volumes:
 - **DI water** – at least 5 L
 - **Wash buffer 1** – at least 5 L
 - **Wash buffer 2** – at least 2 L
- 6 Replace the secondary and wash buffer 2 containers into the instrument.
- 7 Turn on the instrument and then open the Simoa HD-X software.
- 8 After initialization completes, run the Monthly Fluid Prime task again. This will take another 30 minutes to complete.

3 Cleaning the Touchscreen

- 1 Use any glass cleaner that does not contain ammonia.
- 2 Wet a paper towel with glass cleaner and then gently wipe down the touchscreen. Do not spray glass cleaner directly onto the touchscreen.

4 Cleaning Exterior Surfaces

Clean exterior instrument surfaces whenever necessary (at least once per month) by wiping with a soft, clean cloth moistened with water or 70% ethanol.

5 Other Surface Cleaning



WARNING! Turn off the instrument before you perform any of these procedures. The robotic pipettors inside the instrument can injure your hands. Do not attempt to clean the incubator or the washer rings and do not insert your hands into the sample bay or the reagent bay if the instrument is turned on.

- 1 System Resource Drawers
 - a. Fully open both tip drawers from the instrument.
 - b. Wipe the metal frame beneath the drawers with water and then with 70% ethanol.
- 2 Sample and Reagent Bays
 - a. Remove all reagent racks, plate racks, tube racks, and RGP racks.
 - b. Wipe the surfaces of each bay first with water and then with 70% ethanol.
 - c. Replace the racks.
- 3 System Bay
 - a. Wipe the surface beneath the system fluid containers with water and then 70% ethanol.
 - b. Wipe the surface beneath the fluid waste containers with water and then 70% ethanol.

6 Database Maintenance

Each *week*, you must perform the Database Clean task to purge old data so that new data can be stored. This task removes all data for runs older than 30 days from the day you perform the task.

If you want to retain data older than 30 days or to protect data against potential disk failure, it is *your responsibility* to back up the database prior to running the Database Clean task.



Note! In addition to the tasks you perform with the HD-X Analyzer instrument software, Quanterix recommends deleting all assay definitions that have not been used for at least 30 days to improve instrument performance. This is especially important if you have multiple users who create numerous Homebrew assays. The software can lag or crash if it is overburdened with assay definitions.

See the *Simoa HD-X Analyzer IT Setup Guide and HD-X Analyzer Quanterix Customer Support Tool User Guide* for details.

7 Completion

The system is now ready for use. Start of Day must be performed before beginning any runs. If you want to shut down the instrument, perform the End of Day task before shutting down the instrument. Note the date of completion for record keeping and scheduling the next monthly maintenance procedure.