



Guava[®] ICF Instrument Cleaning Fluid



For Research Use Only
4600-0150, Rev L
Catalog No. 4200-0140
May 2019

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Application

The Guava® easyCyte™ and Guava® Muse® Systems operate with minimal maintenance and servicing, but the flow cell and fluid system require regular cleaning to ensure proper performance.

Guava ICF cleans the fluid system of your Guava easyCyte or Guava Muse Instrument by effectively removing sample clogs and buildup from cell debris, proteins, and reagent dye residues. Although Guava ICF is supplied ready to use with no dilution required, you may mix Guava ICF with bleach as described in this guide for a more effective cleaning and disinfecting solution.

For Research use only. Not for use in diagnostic procedures.

Materials Provided

- Guava® ICF (Part No. 4200-0140, 100 mL)

Materials Required but Not Supplied

- Guava® or Muse® Cell Analyzer
- Bleach (at least 5.25% sodium hypochlorite)
- Micropipettor
- Disposable micropipettor tips
- Microcentrifuge tubes with screw caps, 1.5 mL (VWR, Cat. No. 16466-030, or equivalent)
- Disposable gloves
- Deionized (DI) water

Warnings

- Guava® ICF is for laboratory use only.
- Guava ICF contains potassium hydroxide and detergents. Avoid direct contact with skin, eyes, and mucous membranes. The detergent can cause irritation and damage. Pre-existing skin conditions and allergies to detergents can be aggravated by exposure. Consult the Safety Data Sheet (SDS) for additional safety information.
- Guava ICF is a skin and eye irritant.



Causes skin and serious eye irritation. If on skin, wash with plenty of soap and water. If in eyes, rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get medical advice/attention.

- Wear proper laboratory attire (lab coat, gloves, safety glasses) when handling or using this product.
- When using Guava ICF to clean your Guava PCA or easyCyte™ System, handle used sample tubes as if capable of transmitting infection. Dispose of all materials using proper precautions in accordance with

federal, state, and local regulations. Never pipette by mouth. Avoid specimen contact with skin and mucous membranes.

- A Safety Data Sheet for Guava ICF is available from our web site <https://www.luminexcorp.com>.

Storage

- Store Guava® ICF at room temperature. Do not freeze. Refer to the expiration date on the package label. Do not use Guava ICF after the expiration date.
- Store Guava ICF in a closed container. Keep the container capped when not in use.
- Guava ICF has a highly basic pH. Store Guava ICF segregated from acidic reagents.

Protocol

To improve overall Guava® easyCyte™ or Guava® Muse® System performance by removing buildup from cell samples and reagent residues, use Guava ICF in the Quick Clean procedure periodically throughout the day, always followed by at least one Quick Clean with water. To extensively clean and disinfect your Guava easyCyte or Guava Muse fluid System, use Guava ICF with 10% bleach in the cleaning procedure at the end of each day as described in “Cleaning the Instrument” on page 2. Luminex recommends cleaning the system if your Guava Check, easyCheck™, or System Check results fail to reach the expected number of events after running Quick Clean. In addition, you can clean the system to clear stubborn clogs.

WARNING: Do not leave bleach or any other cleaning agent on the instrument overnight or for an extended period of time. Prolonged exposure to strong cleaning agents will damage the flow cell. Always flush the instrument extensively with water after using any cleaning reagent. At the end of a cleaning cycle always leave the capillary tip submerged in a 1.5-mL tube of fresh deionized water.

NOTE: If acquiring whole blood or lysed whole blood samples, first perform the cleaning procedure with water only to prevent any protein precipitation in the capillary or fluidics tubing. Then repeat the cleaning procedure as described below. For more information, refer to the appropriate system user’s guide.

Preparing Guava® ICF

Preparing ICF for Cleaning

1. Dispense approximately 1.3 mL of Guava® ICF into a 1.5-mL microcentrifuge tube.
2. Cap the tube until ready for use.

Preparing ICF with 10% Bleach for Cleaning and Disinfecting

Luminex recommends this 10% bleach mixture for cleaning and disinfecting the Guava® easyCyte™ and Guava® Muse® Systems. Prepare the Guava ICF with 10% bleach mixture frequently (at least every few days) to maintain effectiveness.

1. Mix 1 part bleach with 9 parts Guava ICF (for example, 1 mL bleach plus 9 mL Guava ICF) in a clean container.
2. Cap the container and mix well.
3. Add approximately 1.3 mL of Guava ICF with 10% bleach to a 1.5-mL microcentrifuge tube or 1.0 mL to a titer tube.
4. Cap the tube until ready for use.

Cleaning the Instrument

For details about the following cleaning procedures, as well as additional cleaning and maintenance procedures, refer to the appropriate system user's guide.

For the Guava® Muse® System

NOTE: Always check the fluid levels in the cleaning and waste bottles whenever you run the Complete Clean procedure. Ensure the cleaning solution bottle is filled with ICF.

1. Select **Muse System Cleaning** under Essential Tools at the main menu.
2. Select **Complete System Clean**.
3. Select **Run Complete Clean**.
4. Follow the prompts to load ICF, followed by water.
5. Select **Finish** if you are done, or **Next Cleaning** to run the Complete System Clean again. Always leave a tube of water on the system after cleaning and when shutting down.

For the Guava® easyCyte™ SL (Single-Loader) Systems

1. Click **Cleaning** from the main menu. The Guava® Clean screen appears.
2. Click **Start Cleaning**. Load a tube of DI water, then click **OK**.
3. After approximately 4 minutes, a message appears prompting you to load a tube of cleaning solution. Load a tube of Guava ICF with 10% bleach. Ensure that there is sufficient cleaning fluid in the cleaning solution vial. Click **OK**.
4. After approximately 3 minutes, a message appears prompting you to load a tube of DI water. Load a tube containing about 1 mL of clean DI water, then click **OK**.
5. Click **Main Menu** to return to the GuavaSoft™ main menu, or click **Exit** to close GuavaSoft. Always leave a tube of water on the Guava easyCyte™ when it is turned off.

For the Guava® easyCyte™ HT (Automated) Systems

1. Click **Cleaning** from the main menu. The Guava® Clean screen appears.
2. Click **Start Cleaning**. The tray ejects and a dialog box appears. Load the following tubes:
 - DI water in w1 through w6 and tube position 1
 - 100 µL of straight bleach in tube position 2

- bleach in ICF (1 part to 9 parts) in tube positions 3 and 4
 - DI water in any position 5-9, then click to select the location
3. Click **Main Menu** to return to the GuavaSoft™ main menu, or click **Exit** to close GuavaSoft.

For the Guava® PCA System

1. Click **Clean and Shut Down** from the main menu. The Guava® Clean screen appears.
2. Click **Start Cleaning**. Load a tube containing Guava ICF or Guava ICF with 10% bleach. Click **OK** at the prompt.
3. After approximately 3 minutes, a message appears prompting you to load a tube of DI water. Load a tube containing about 1 mL of deionized water, then click **OK**. After approximately 3 minutes, End of Cleaning appears at the bottom of the screen.
4. Click **Main Menu** to return to the CytoSoft™ main menu or click **Exit** to close CytoSoft.
NOTE: If you want to continue with data acquisition, launch the desired CytoSoft application and allow the laser to warm up for 5 minutes before resuming data acquisition.
5. Leave a tube of water on the Guava PCA.

For the Guava® easyCyte™ Mini System

1. Click **Clean and Shut Down** from the main menu. The Guava® Clean screen appears.
2. Click **Clean Only** or **Clean and Shut Down**. Load a tube containing Guava ICF or Guava ICF with 10% bleach. Ensure that there is sufficient cleaning fluid in the cleaning solution vial. Click **OK**.
3. After approximately 2 minutes, a message appears prompting you to load a tube of DI water. Load a tube containing about 1 mL of deionized water, then click **OK**.
4. If you selected **Clean Only**, after approximately 5 minutes, End of Cleaning appears at the bottom of the screen.
5. Click **Main Menu** to return to the CytoSoft™ main menu, or click **Exit** to close CytoSoft. If you selected **Clean and Shut Down** the system will automatically power off.
6. Leave a tube of water on the Guava easyCyte Mini when it is turned off.

For the Guava® PCA-96, PCA-96 AFP, and easyCyte™ Systems

1. Click **Clean and Shut Down** from the main menu. The Guava® Clean screen appears.
2. Click **Start Cleaning**. The tray ejects and a dialog box appears. Load two tubes containing Guava ICF or Guava ICF with 10% bleach into tube locations w1 and w4. Load four tubes containing DI water into tube locations w2, w3, w5, and w6. Click **OK**. The tray loads and cleaning begins. After approximately 15 minutes, the cleaning procedure is finished and Ready to Start appears again at the bottom of the screen.
3. Click **Main Menu** to return to the CytoSoft™ main menu, or click **Exit** to close CytoSoft.

Cleaning a Clogged Flow Cell

Occasionally while using an application, data acquisition may slow or fail to reach the expected number of events, indicating a clog. Cleaning the instrument with Guava® ICF can improve performance.

If, after following this procedure, the fluid system still appears to be clogged, refer to the appropriate system user's guide for more troubleshooting tips or contact Luminex Technical Support for assistance.

For Single-loader Instruments

1. Click **Abort**, if the sample seems to be running slowly.
2. Load a tube containing a small amount of bleach for disinfecting, and then click **Backflush**. Discard the tube after performing this step.
3. Click **Quick Clean**. Follow the prompts and load a tube containing Guava® ICF or Guava ICF with 10% bleach. Click **OK**. The cleaning solution runs for approximately 30 seconds.
4. Load a tube containing deionized water, then click **Quick Clean** again.
5. Verify that the water tube is loaded, and then click **OK** to rinse out the cleaning fluid.
6. If the clog is difficult to clear, repeat steps 2 through 5.

For Automated Instruments

1. Pause the worklist.
2. Eject the tray to load one tube containing a small amount of bleach for disinfecting, one tube containing clean water and one tube containing Guava® ICF or Guava ICF with 10% bleach, if necessary. Reload the tray, and then click **Backflush**.
3. Follow the prompts to use the tube with 20% bleach.
4. Click **Quick Clean**. Follow the prompts to indicate the location of the tube containing Guava ICF or Guava ICF with 10% bleach. Click **OK**. The cleaning solution runs for approximately 30 seconds.
5. Click **Quick Clean** again, this time indicating the location of the tube with water. Click **OK** to rinse out the cleaning fluid.
6. If the clog is difficult to clear, repeat steps 2 through 5.

For the Muse® Instrument

1. Select **Abort**, if the sample seems to be running slowly.
2. Select **Clean**, then select **Backflush** and follow the prompt to load a tube with 20% bleach. Discard the tube after performing this step.
3. Select **Quick Clean**. Follow the prompt but load a tube containing Guava® ICF or ICF with 10% bleach. Select **Clean**. The cleaning solution runs for approximately 30 seconds.
4. Select **Quick Clean** again. Load a tube of DI water, then select **Clean**.
5. Remove the tube and select **Close**.
6. If the clog is difficult to clear, repeat steps 2 through 5.

Troubleshooting Tips

For more troubleshooting tips, refer to the appropriate Guava® or Muse® System user's guide.

1. If the data acquisition rate slows or does not reach the target number of events, stop the acquisition and use the cleaning procedures described in "Cleaning the Instrument." If you are having fluidics problems and are using the Guava® ViaCount™ application, we recommend running Guava Check, easyCheck™, or System Check to assess instrument counting performance before continuing with ViaCount.
2. If a clog is difficult to clear using Quick Clean, perform a Backflush, then repeat the Quick Clean several times using Guava ICF and DI water. If the flow rate is still slow, perform a Complete System Clean procedure until the acquisition rate is normal.
3. If Guava Check, easyCheck, or System Check shows a low particles/mL count and the scatter and fluorescence intensity results are normal, partial clogging is likely. Run Quick Clean using Guava ICF and again with DI water. If the acquisition rate is still below normal, run Clean and Shutdown with two cycles (Guava PCA) or one cycle (all other Guava System).
4. Use Guava ICF periodically to clear the fluid system of buildup from cell samples and reagent residue. Run Quick Clean with Guava ICF followed by water.
5. Particularly sticky or clumpy cell samples often require intermittent use of Guava ICF with Quick Clean. Always follow this procedure with another Quick Clean using DI water. This rinses the flow cell and prevents sample contamination. Contact Luminex Technical Support for additional assistance.

Limitations

The results of the product are dependent upon proper use of reagents, products, and instruments.

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