Cleaning Procedure for AccuSizer A2000

AccuSizer SPOS System

CLEANING PROCEDURE FOR A2000

In order for the AccuSizer A2000 to work at its optimal potential it is necessary to clean the sample and assistant pumps that are part of the fluidics of the system along with the sensor installed. There are three methods for cleaning the A2000:

- Cleaning with degreaser
- Cleaning with isopropyl alcohol (IPA)
- Flushing with filtered deionized water

If you run degreaser, or IPA, through the filter for the diluent pump, you will ruin the filter. You can use this procedure to clean the diluent pump, if you bypass the filter, and go directly into the sensor.

CLEANING THE SENSOR

Prior to cleaning the fluidics and pumps, the sensor should be removed, cleaned, and replaced into the system. The voltages for the sensor should fall within the range 8 – 9 volts. If the voltages look good, proceed with the cleaning procedure outlined below. If not, contact your local Entegris representative so you can send you sensor in for servicing.

SETUP

Make sure that the sample tube leading to the pump, and the tube exiting the sensor, is long enough to reach the beaker or bottle containing the cleaning solution. Be sure to have an empty waste bucket, or beaker, for collecting any fluid that is flushed out of the system. Ensure that the pump is going in the right direction so that it pushes through the sensor, typically counter clockwise.

CLEANING WITH DEGREASER

When cleaning using degreaser, two cycles will be performed. Each cycle will run using approximately 1200 mL.

First Cycle with Degreaser

1. In a clean beaker, or 1-liter bottle, mix approximately 200 mL of degreaser concentrate with 400 mL of filtered deionized water, to prepare approximately 600 mL of solution.

2. Place the sample tube into the degreaser solution.

3. Access the AccuSizer software.

4. Click on the Maintenance icon or the Maintenance tab.

5. Locate the pump section and set the dispense volume to 1200 mL and the flow rare to 30 mL/min.

6. Start the pump and flush any fluid left in the system into an empty waste beaker. Continue flushing until the degreaser solution begins exiting out of the tube.

7. Place the tube coming from the sensor into the beaker, or bottle, containing the degreaser. This will create a recirculating loop for the cleaning agent.

8. Allow the system cycle through the full 1200 mL run.

9. After the run, start the second run with fresh degreaser concentrate.

Second Cycle with Concentrated Degreaser

1. In a clean beaker, or 1-liter bottle, measure 200 – 300 mL of degreaser concentrate. Do not dilute with water.

2. Place sample tube into concentrated degreaser.

3. Access the AccuSizer software.

4. Click on the Maintenance icon or the Maintenance tab.

5. Locate the pump section and set the dispense volume to 1200 mL and the flow rare to 30 mL/min.

6. Start the pump and flush any fluid left in the system into an empty waste beaker. Continue flushing until you see the concentrated degreaser exiting out of the tube.

7. It may be helpful to pull an air gap before running the degreaser concentrate through the system. It will make it easier to keep track of the fresh degreaser within the system.

8. Once a steady stream of the concentrated degreaser begins exiting the system, place the tube coming from the sensor into the container of concentrated degreaser. This will create a recirculating loop of the concentrated degreaser.

9. Continue circulating the concentrated degreaser until the entire 1200 mL cycles through.

10. After the run, check the clarity of the degreaser concentrate. If it appears to be clear, start flushing the system with IPA. If not, repeat the first and second cycle steps for the degreaser cleaning until it runs clear.

CLEANING WITH IPA

First Cycle with IPA

1. Add 200-300 ml of IPA into a clean beaker, or 1-liter bottle.

2. Place the sample tube into IPA.

3. Access the AccuSizer software.

4. Click on the Maintenance icon or the Maintenance tab.

5. Locate the pump section and set the dispense volume to 1200 mL, and the flow rare to 30 mL/min.

6. Start the pump and flush any fluid left in the system into an empty waste beaker. Do this until you see IPA coming out of the tube.

7. Once a steady stream of the IPA begins exiting the system, place the tube coming from the sensor into the container of IPA. This will create a recirculating loop of the IPA.

8. Let the system cycle through the full 1200 ml run.

9. Start the second cycle with fresh IPA repeating steps 1 – 8.

FLUSHING WITH FILTERED WATER

First Cycle Run with Filtered Water

1. Add approximately 200 – 300 mL of filtered deionized water into a clean beaker, or 1 liter bottle. At this time, 1 – 2 µL of concentrated surfactant can be added to the water and then mixed. If concentrated surfactant is added, an additional flush cycle must be performed.

2. Place sample tube into the filtered water.

3. Access the AccuSizer software.

4. Click on the Maintenance icon or the Maintenance tab.

5. Locate the pump section and set the dispense volume to 1200 mL and the flow rare to 30 mL/min.

6. Start the pump and flush any fluid left in the system into an empty waste beaker. Flush until the water begins exiting out of the tube.

7. It may help to pull an air gap so you can track the water flowing through the system, especially since IPA and water are both clear liquids.

8. Once a steady stream of water begins exiting the system, place the tube coming from the sensor into the beaker, or bottle, containing the filtered water. This will create a recirculating loop for your cleaning agent.

9. Let the system cycle through the full 1200 mL run.

10. After the run, start the second cycle with fresh filtered water.

Second Cycle with Filtered Water

1. Add 200 – 300 ml of filtered water into a clean beaker, or 1 liter bottle.

2. Place sample tube into filtered water.

3. Access the AccuSizer software.

4. Click on the maintenance icon or the Maintenance tab.

5. Locate the pump section and set the dispense volume to 1200 mL and the flow rare to 30 mL/min.

6. Start the pump and flush any fluid left in the system into an empty waste beaker. Do this until you see water coming out of the tube.

7. It may help to pull an air gap so you can track the water flowing through the system. That way you can track the fresh filtered water.

8. Once a steady stream of water begins exiting the system, place the tube coming from the sensor into the beaker or bottle containing the filtered water. This will create a recirculating loop for your cleaning agent.

9. Let the system cycle through the full 1200 mL run.

10. After the run, keep flushing the system with fresh water into a waste beaker and monitor the counts by preforming test runs. When the counts fall below 40 #/mL the system is clean. Ideally, if the water source is clean enough, the system will detect counts around 20 #/mL or lower. This step may take a significant amount of time to complete.

Follow the same procedure. Start with your two runs of toluene, two runs of IPA, and your two filtered water runs. This will typically eliminate everything that has coated the insides of the pumps, tubing, and flow cell of the sensor. Do not let toluene sit within the system or sensor too long. This can damage the pump, tubing, and flow cell of the sensor, and will require off-site servicing.

If the counts still seem high once you reach the filter water testing stage, you may need to follow the toluene cleaning procedure with the aforementioned cleaning with degreaser procedure. This will typically eliminate residual residue from the system.

SPECIAL NOTE

If the system has been sitting or stored for a significant period of time, and was not properly flushed before hand, this cleaning procedure will not work. Toluene must be used as a replacement for the degreaser.

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