



Simple Precision™

RUNNING SAMPLES WITH CHECK SOLUTION ON THE KAM KF KARL FISCHER

KAM Check Solution is a sample fluid with certified, known quantities of water, providing users with an absolute standard to verify KAM Karl Fischer unit performance.

Check Solution samples should be ran after reagents have been changed, after the unit has been turned off or has been out of titration mode for more than 24 hours, or when readings do not match expected norms. Check Solution can also be used to verify reagent life/performance.

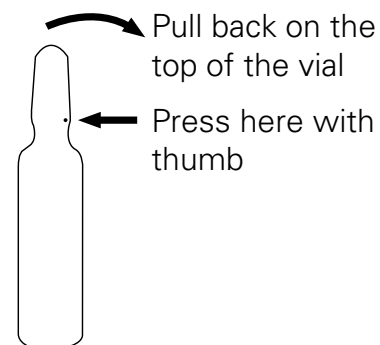
If reagents have been replaced, wait a minimum of 2 hours before running samples with check solution to allow the reagents to completely saturate the ceramic frit. An indicator that the instrument is ready to be used is when the detect and titrate bars don't bounce past 1/8 the length of the bars in a period of less than 1 minute.

Sample preparation and methodology must conform to the standards dictated in API MPMS Chapters 8.3 and 10.9.

KAM Check Solution is shipped in a box with 10 vials of solution and certificate verifying water quantity for the samples.

WARNING: When handling KAM Reagents, users should wear protective gloves, eye protection, and face protection. **IF ON SKIN (or hair):** immediately remove all contaminated clothing, and thoroughly rinse skin with water.

1. The tops of vials must be snapped off in order to access the sample fluid. To do so, first check to see if the vial has a small white dot near the rim of the top portion of the vial. If it does, place your thumb on the dot pressing in while simultaneously pulling the top backwards. The top of the vial easily should snap along previously scored lines.
2. If the vial does not have a white dot, users can apply pressure at any point along the upper rim of the vial while pulling back.



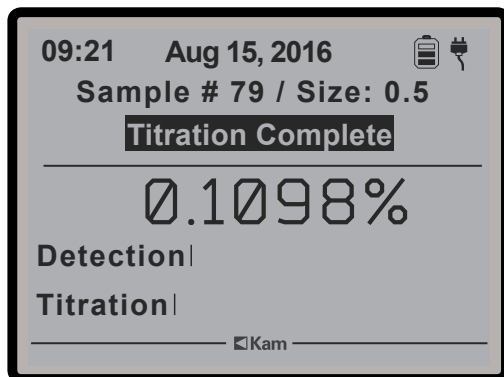
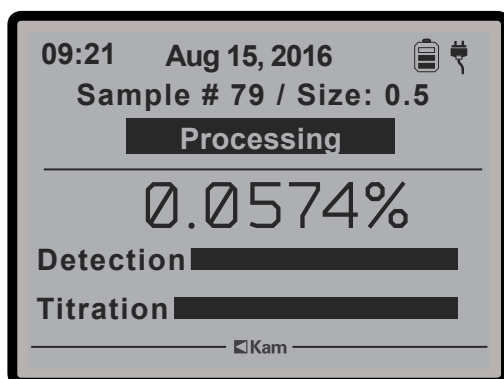
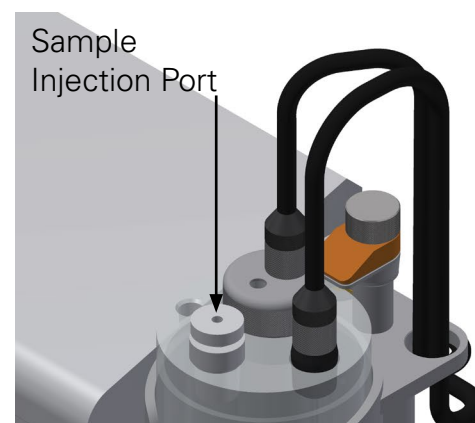
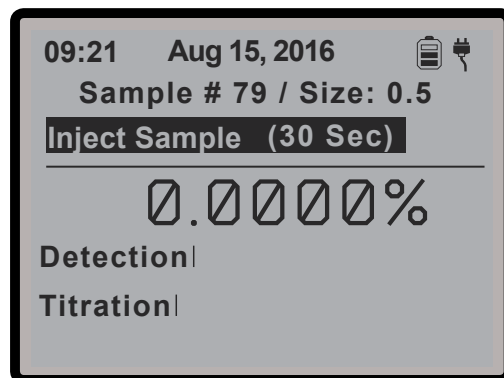
NOTE: KAM highly recommends securing the vial base in a foam base or another appropriate material prior to drawing samples with a syringe. This will prevent fluid spills and/or injury from or damage to the syringe.

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3. To draw a sample, first flush the syringe with Check Solution. Draw this sample into the syringe and discharge the solution into a waste container a minimum of three times.
4. After the syringe has been properly flushed, draw a new sample of Check Solution into the syringe. The sample volume drawn should be slightly larger than the desired amount.
5. Invert the syringe so that the needle end is pointing up. Wrap the needle in a paper towel (to absorb discharged excess fluid) and hold syringe by needle end. Tap the body of the syringe to allow any air bubbles to rise to the top. Slowly press plunger to discharge air bubbles and excess sample fluid from the inside of the syringe. The tip of the plunger should exactly align with the sample volume marking.
6. Press NEW SAMPLE key on Keypad.
7. The display will read "Inject Sample" and a thirty-second countdown will begin.
8. Insert syringe needle through the Sample Injection Port, piercing the Septum and continuing into the cell until the needle tip is fully submerged in the Reagent.
9. Inject the sample into the Reagent. This should be done in a single, swift movement, but do not allow the sample to splash up against the wall of the Generator Solution Cell or the needle to touch the sides of the cell.

Electrolysis begins automatically by the injection of the sample. When the analysis is completed, the unit beeps and the results will be displayed on the Titration Complete screen.

Reading should fall in the range indicated on the check solution Certificate of Analysis (typically 0.0970 – 0.1030.)



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If the reading does not fall within certified limits:

- 1.** Run a second sample. If the reading still does not fall within prescribed limits and reagents have not recently been replaced, it is likely an indication that the reagent life has expired. Follow procedures in the KAM KF manual for reagent replacement.
- 2.** If the second sample fall within required range, run an additional sample to verify.
- 3.** If reagents have been replaced within a period of less than 2 hours prior, allow a full two hours after replacement to pass prior to using check solution.
- 4.** If reagents have been replaced and 2 hours have passed and readings are still faulty, this likely indicates an issue with the electrolysis grids.
- 5.** Unplug the Cathode Solution Cell jack (black) and Detector Electrode jack (red) from the side of the unit.
- 6.** Remove entire glassware assembly from KAM KF unit to prevent any spills onto the unit itself.
- 7.** Slightly twisting back and forth, pull the Cathode Solution Cell from the Cell Assembly.
- 8.** Keeping the cell vertical, inspect the platinum grids and ceramic frit at the bottom of the cell for any debris, or accumulated oil not properly removed during cleaning. If there is anything on the bottom of the cell, dispose of reagents, clean the glass ware and start the process from the beginning.
- 9.** If after all of the steps above have been completed, the unit still does not read within required parameters, contact KAM Controls at +1 713 784 0000 or askanengineer@kam.com for further troubleshooting.