QIAcube Centrifuge

Cleaning the QIAcube® centrifuge

This document describes how to clean the QIAcube centrifuge and remove plastic debris due to plasticware failure during a centrifuge run.

Important notes before starting

- Make sure to read this document carefully before starting.
- Wear a suitable lab coat, disposable gloves, and protective goggles. Please read the *QIAcube User Manual*, paying careful attention to the safety information, before beginning this procedure.

Opening the centrifuge lid

The centrifuge lid must be open to allow access to the inside of the centrifuge. If the lid does not open automatically, perform the following steps.

1. **Press "Tools" in the main menu.**
2. **Select "Maintenance" by pressing "⮝" or "⮟" to scroll through the list until it is highlighted and then press "Select".**
3. **Select "Open lid" by pressing "⮝" or "⮟" to scroll through the list until it is highlighted and then press "Select".**

Cleaning the rotor and buckets

1. **Switch off the QIAcube at the power switch.**
2. **Remove used disposable labware, sample tubes, and reagents from the worktable. Discard according to your local safety regulations.**
3. **Close the buffer bottles tightly, and store according to the instructions in the relevant kit handbook.**
4. **Remove all disposable rotor adapters, including tubes and spin columns, from the buckets.**
5. **Remove the buckets from the rotor. Undo the rotor nut on top of the rotor using the rotor key, and carefully lift the rotor off the rotor shaft.**
6. **Disinfect the rotor, buckets, rotor nut, and rotor key with an ethanol-based disinfectant (e.g., Mikrozid® Liquid). Incubate as appropriate.**

7. **Rinse thoroughly with distilled water. Use a brush (i.e., a toothbrush or tube brush) to clean any parts that are difficult to access, such as the bucket mount and the rotor head. Wipe surfaces dry with a soft lint-free cloth. If available, dry the buckets and rotor with pressurized air.**

   We recommend drying using pressurized air to remove any small plastic particles adhering to the rotor or the buckets. Special care must be taken to remove any plastic particles from the rotor pegs, floor and back of the centrifuge compartment, and the rotor shaft guide. When handling the bucket, pay particular attention that the bucket mount is not damaged.

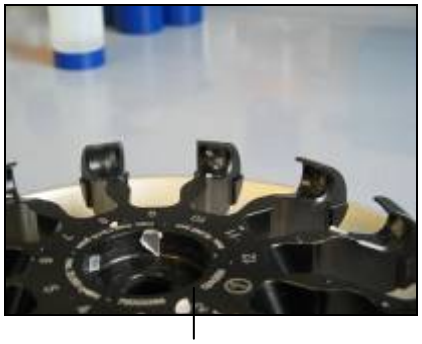
8. **Apply a few drops of mineral oil (Anti-Corrosion Oil (rotor), cat. no. 9018543) to a soft, lint-free cloth and wipe the surface of the bucket mount and the hook that the bucket hangs on. The bucket mount and hook should be lightly coated with an invisible oil film. Make sure that the oil is not smeared or in droplets.**

   Important: Be sure to only use lint-free paper towels and brushes.

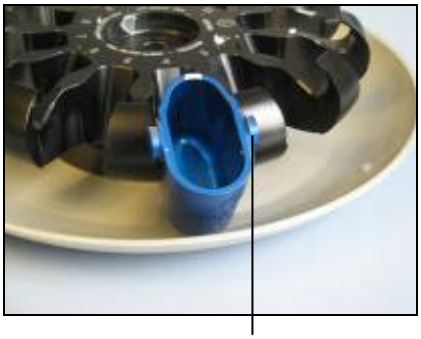
   Important: Make sure to remove all residual plastic and salt.

   Important: Make sure to remove all traces of disinfectant from the centrifuge buckets. Residual disinfectant can cause the buckets to jam.

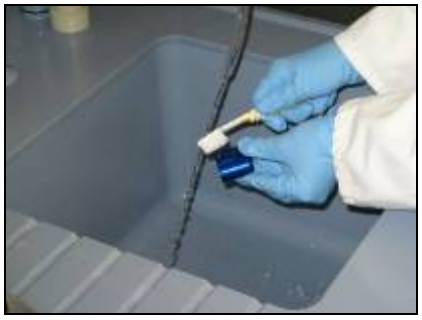
   Important: When replacing the rotor buckets on the rotor, make sure that the rotor and all buckets are completely dry.



Rotor head



Bucket mount



Brushing a bucket.

Brushing the rotor.

Cleaning the centrifuge

1. **Moisten a soft lint-free cloth with an ethanol-base disinfectant (e.g., Mikrozid Liquid), and clean the inside of the centrifuge and the centrifuge gasket. Incubate as appropriate.**

   Do not spray disinfectant into the centrifuge.

2. **Wipe dry with lint-free paper towels. If available, use a vacuum cleaner to remove any small plastic particles from the inside of the centrifuge.**

   Tweezers or tape can be used to remove plastic particles from any difficult to access parts.

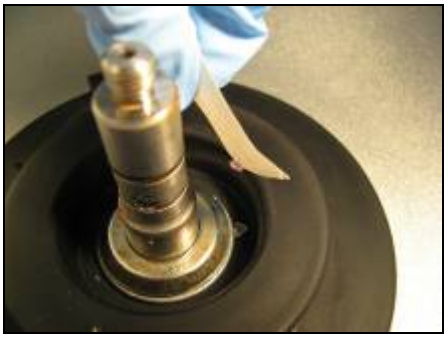
   Important: Make sure to use lint-free paper towels.

   Important: Make sure that all plastic particles are removed.

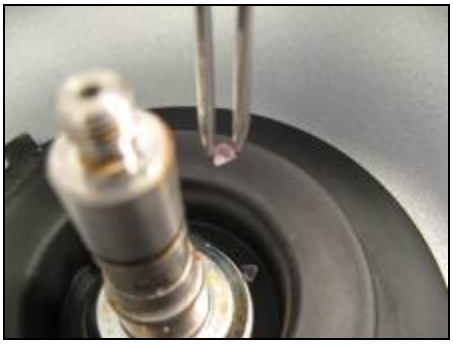
   Important: Make sure the gaskets remain in the proper positions.

3. **Clean the centrifuge lid with a soft lint-free cloth moistened with an ethanol-based disinfectant (e.g., Mikrozid Liquid). Incubate as appropriate, and wipe dry with paper towels.**
4. **Check the centrifuge gasket for damage. If the gasket is damaged or shows signs of wear, contact QIAGEN Technical Services.**

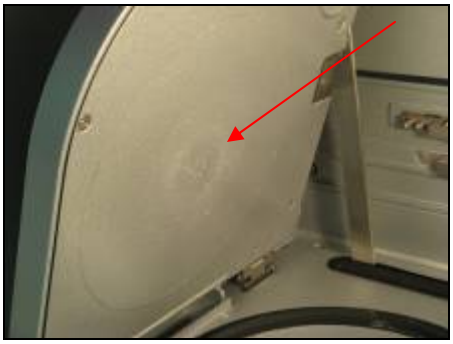
Plastic debris in the centrifuge.



Removing plastic debris with tape.



Removing plastic debris with tweezers.



Centrifuge lid with plastic dust.

Cleaning the worktable

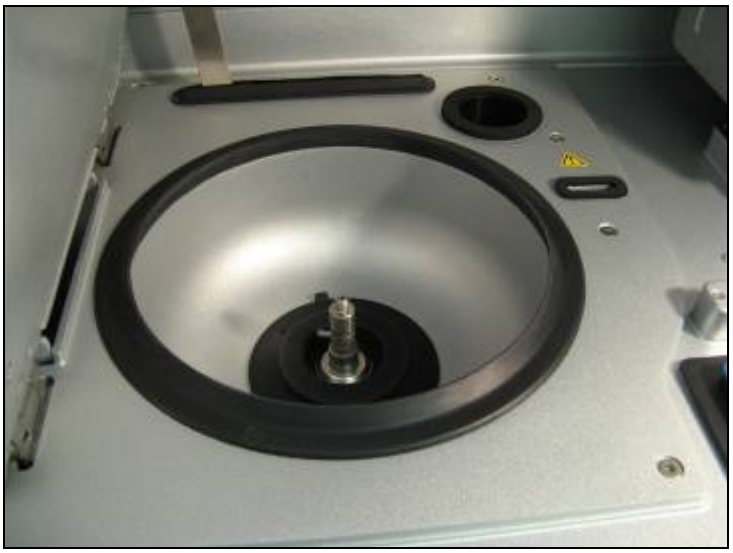
1. **Empty the waste drawer and check that the liner is clean. If necessary, clean with 70% ethanol, and rinse with distilled water.**
2. **Clean the shaker rack and reagent bottle rack with 70% ethanol, and rinse it thoroughly with distilled water.**

3. **Clean the surface of the worktable using a soft lint-free cloth moistened with an ethanol-based disinfectant (e.g., Mikrozid Liquid). Incubate as appropriate, and wipe dry with lint-free paper towels.**

   Do not spray liquid onto the worktable. Take particular care not to spray liquid onto the display.

   Important: Make sure to use lint-free paper towels.

   Important: Make sure that every plastic item is wiped off.



Centrifuge and worktable after cleaning.

Cleaning the gripper unit

1. **Moisten a soft lint-free cloth with 70% ethanol.**
2. **Press "Tools" in the main menu.**
3. **Select "Maintenance" by pressing "⮝" or "⮟" to scroll through the list until it is highlighted and then press "Select".**
4. **Select the protocol "Cleaning position" by pressing "⮝" or "⮟" to scroll through the list until it is highlighted and then press "Start".**

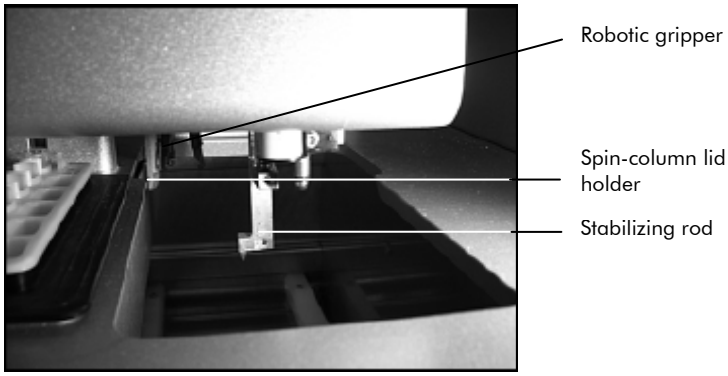
   Follow the instructions displayed in the touchscreen.

   You will be asked to remove the waste drawer and the labware tray.

   The robotic arm will move forward and down, enabling the gripper unit to be accessed for cleaning through the opening for the waste drawer.

5. **Carefully wipe the gripper unit, including the gripper, the stabilizing rod, and the spin-column lid holder.**

   Important: Make sure to use lint-free paper towels. Ensure that any residual salt is removed.



Cleaning the gripper unit.

Installing the centrifuge rotor and buckets

1. **Replace the rotor buckets.**

   When replacing the rotor buckets, the side of the rotor bucket that must face toward the rotor shaft is marked with a gray line. Hold the bucket at an angle with the gray line facing the center of the rotor and hang the bucket on the rotor. Check that all buckets are properly suspended and can swing freely.

2. **Mount the rotor.**

   The rotor can be mounted in only one orientation. The pin on the rotor shaft fits into a notch on the underside of the rotor directly underneath rotor position 1. Line up position 1 of the rotor with the pin on the rotor shaft and carefully lower the rotor onto the shaft. Install the rotor nut on top of the rotor and tighten using the rotor key supplied with the QIAcube. Make sure that the rotor is securely seated. Check that all buckets are properly suspended and can swing freely.

   Note: The side of the rotor bucket that must face towards the rotor shaft is marked with a gray line to help prevent buckets from being loaded incorrectly.

   Important: All centrifuge buckets must be mounted before starting the test run.

Operating the centrifuge after cleaning

The centrifuge must be operated independently before starting further protocol runs to test if residual plastic parts are still in the centrifuge.

For detailed information about operating the centrifuge, see Section 5.8 of the *QIAcube User Manual*.

1. **Switch on the QIAcube at the power switch.**

2. **Set centrifugation parameters for a centrifuge test protocol.**

   Press "Tools" in the main menu.

   Select "Centrifuge" by pressing "▲" or "▼" to scroll through the list until it is highlighted, and press "Select".

   To select the speed, time, and acceleration, press "Edit" and set the following parameters.

   - "Time 1": 60 sec
   - "Speed 1": 12,000 *g*
   - "Acceleration": 9
   - "Time 2": 0 sec
   - "Speed 2": default

   Press "Back" to exit edit mode.

   Press "Start" to start the centrifuge.

   Note: Rotor adaptors and other consumables are not required.

3. **Carefully listen to the sound during centrifugation.**

   Unusual sound during centrifugation:

   If any grinding, rattling, or crunching sounds are heard during the centrifugation, there are still loose plastic particles inside the centrifuge. Repeat the cleaning procedure described in this document.

   Note: it may be necessary to repeat the procedure several times to remove all plastic particles.

   No unusual sound during centrifugation:

   If no unusual sound from loose plastic particles can be heard during centrifugation, the next sample run can be started.

The QIAcube is intended for research applications. No claim or representation is intended for its use to provide information for the diagnosis, prevention, or treatment of a disease.

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