



Miltenyi Biotec



MACSQuant® Instrument short instructions

Maintenance

Before using the instrument for the first time, read the MACSQuant Instrument user manual and MACSQuantify Software user manual.

⚠ WARNING

Risk of scalds and/or chemical burns of skin and eyes due to hot liquids and hypochlorite solution (bleach).

Wear personal protective equipment (such as gloves, safety glasses, etc.) as indicated in the safety data sheet for the particular substance.

⚠ WARNUNG

Gefahr von Verbrühungen und/oder Verätzungen von Haut und Augen durch heiße Flüssigkeiten und Hypochloritlösung (Bleichmittel). Tragen Sie persönliche Schutzausrüstung (wie Handschuhe, Schutzbrille, etc.) wie in der Dokumentation zum jeweiligen Stoff angegeben.

⚠ ADVERTENCIA

Riesgo de escaldaduras y/o quemaduras químicas en la piel y los ojos por líquidos calientes y solución de hipoclorito (lejía).

Use equipo de protección personal (como guantes, gafas de seguridad, etc.) como se indica en la documentación de la sustancia en particular.

⚠ AVERTISSEMENT

Risque d'ébouillantage et/ou de brûlures chimiques de la peau et des yeux par des liquides chauds et de la solution d'hypochlorite (eau de Javel).

Portez des équipements de protection individuel (tels que des gants, lunettes de protection, etc.) en suivant les indications fournies dans la documentation pour la substance particulière.

⚠ AVVERTENZA

Rischio di scottature e/o ustioni chimiche della pelle e degli occhi a causa di liquidi caldi e soluzione di ipoclorito (candeggina). Indossare i dispositivi di protezione individuale (come guanti, occhiali di sicurezza, ecc.) come indicato nella scheda di sicurezza della sostanza particolare.

Introduction

All MACSQuant Instruments are equipped with automated start-up and shutdown protocols to ensure easy and reliable maintenance. When running many or sticky samples, additional cleaning routines are recommended to further enhance performance of the instruments.

Cleaning programs

Cleaning programs	Description
Rinse	Rinses the needle with running buffer. Click on the Rinse button to start a needle rinse with a duration of 2 minutes.
Clean	Cleans the needle and flow cell with 0.25 mL 1% hypochlorite solution. Right-click on the Rinse button and select Clean to start the clean program with a duration of 12 minutes.
Flush	System backflush rinse if a blockage of the system occurs. Right-click on the Rinse button and select Flush to start the flush program with a duration of 16 minutes. The flush program has a duration of 2 minutes on the MACSQuant X.

Table 1: Cleaning programs available on MACSQuant Instruments



Figure 1: Rinse button

Cleaning after each user (optional)

- 1 Start a clean program. Right-click on the **Rinse** button and select **Clean**.
- 2 Follow the on-screen instructions: Add 0.5 mL of a 1% hypochlorite solution into a 5 mL tube.
- 3 Place the tube in the Single tube rack.
- 4 Click **Continue**.

Use laboratory-grade reagents only to prepare a 1% hypochlorite solution. Do not use commercial bleach as it may damage the instrument.

Daily cleaning

This cleaning routine can be used at the end of a working day.

Standard cleaning procedure

- 1 Start a clean program. Right-click on the **Rinse** button and select **Clean**.
- 2 Shut down the instrument as described in the short instructions **Start-up, shutdown, and instrument monitoring**.

Cleaning after running sticky sample material

This cleaning procedure can be used if sticky sample material like bone marrow or tumor samples were acquired. It is also recommended if the instrument is used often during the day.

- 1 Run a clean program. Right-click on the **Rinse** button and select **Clean**.
- 2 Run a flush program. Right-click on the **Rinse** button and select **Flush**.
- 3 Shut down the system as described in the short instructions **Start-up, shutdown, and instrument monitoring**.

Monthly cleaning

Cleaning the washing station

- 1 Switch off the instrument.
- 2 Remove the Single tube rack.
- 3 Open the cover of the washing station to the left-hand side.
- 4 Clean the washing station by wiping it with tissues and an appropriate disinfectant, e.g. 70% ethanol, isopropyl alcohol, or 1% hypochlorite solution. Finally, rinse with distilled water.

Cleaning the uptake needle

Clean the uptake needle of the robotic needle arm regularly to prevent contamination or clogging.

- 1 Switch off the instrument.
- 2 Take the needle at the top and pull it out of the holder.
- 3 Wipe the surface of the needle with tissue soaked with disinfectant followed by distilled or deionized water. The needle is resistant against disinfectants that contain alcohol (e.g. 70% ethanol or isopropyl alcohol) and 1% hypochlorite solution.
- 4 Put the needle back into the holder.

Long-term storage of the instrument

The instrument must be run every two weeks in order to prevent clogging. If the instrument is not in use, turn on the instrument every two weeks and switch it into acquisition mode. During the priming

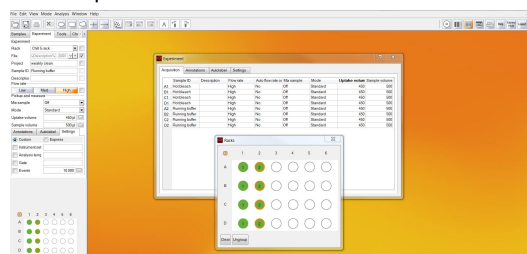
procedure, the fluidics will be flushed. After the instrument has been primed, shut down the instrument manually as described in the short instructions **Start-up, shutdown, and instrument monitoring**.

Removing a potential blockage using hot bleach

Clogs or blockages in the sample tubing or flow cell can cause greatly reduced event rates. Optimized sample preparation can prevent most clogs. Observe the instructions below to remove blockages. Contact Miltenyi Biotec Technical Support if the problem persists.

The following protocol can also be used as a weekly cleaning routine.

- 1 Go to the **Experiment** tab.
- 2 Select the Chill 5 Rack.
- 3 Highlight column 1 and type in "Hot Bleach" in the **Sample ID** field.
- 4 Highlight column 2 and type in "Running Buffer" in the **Sample ID** field.
- 5 Highlight all wells.
- 6 Set the flow rate to high, the uptake volume to 450 µL and the sample volume to 500 µL. It is not necessary to have an analysis window open.



- 7 Save this as an experiment file called **Weekly cleaning** in the Public folder, so that the file can be opened by any user.
- 8 Open the **Weekly cleaning** experiment file.
- 9 Prepare 2 mL hot bleach solution. Mix 1 mL of 1% hypochlorite solution with 1 mL boiled distilled water. Use a microwave oven or water kettle to boil the water.
- 10 Place four tubes containing 0.5 mL hot bleach solution into wells A1-D1 of the Chill 5 Rack.

Use a Chill 5 Rack stored at room temperature.

- 11 Place four tubes containing 0.5 mL MACSQuant Running Buffer into wells A2-D2.
- 12 Place the Chill 5 Rack onto the MACS MiniSampler Plus.
- 13 Click the **Start** button.

Are you in need of additional assistance?

Miltenyi Biotec provides products and services worldwide. Visit www.miltenyibiotec.com/local to find your nearest Miltenyi Biotec contact.