

HOW TO CLEAN THE MATEO TL MICROSCOPE

Our Recommendations

Keeping a sterile environment is key for the continuity of cell culture experiments (Reference 1). Microscopes are commonly shared by several users, so there is a risk of contamination by microorganisms.

Whether using the Mateo TL on a bench or inside a laminar flow hood (Figure 1), a regular cleaning of the microscope is recommended. To protect yourself and your work, the use of disposable gloves for microscope operation and cleaning is highly recommended.



Figure 1: Operation of Mateo on a bench (A) or in the cell culture laminar flow hood (B).

Regular Cleaning

Regular cleanings are necessary for components and surfaces which are accessible to users and often handled.

Before Starting

Where to do it

For operation of Mateo TL on the bench (Figure 1 A), clean it once it is at its final workplace. If you plan to work in the cell-culture laminar flow hood, sterilize the flow hood, clean the microscope on the bench, and then transport Mateo TL into the hood using the handle (Figure 2A) and the display can be folded down to make transport easier (Figure 2 B).

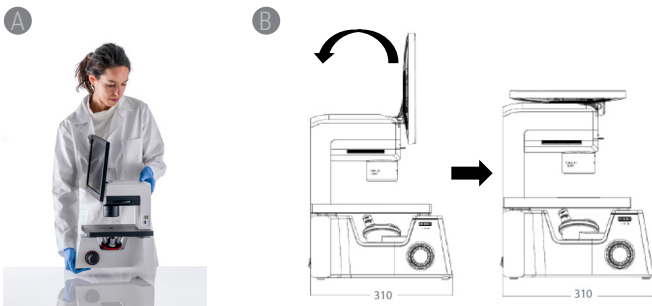


Figure 2: Transport of Mateo TL (A) can also be done with the screen display in the folded-down position (B)

Do not use the UV lamp in the laminar flow hood to sterilize the microscope surfaces as it might accelerate hardening and aging of the polymeric parts of the microscope and its display

Materials needed

- > Disposable soft tissue or wipes
- > Ethanol 70%
- > Powder-free disposable gloves

Why 70% ethanol? We recommend regular cleaning of Mateo TL with an alcohol-based disinfectant solution, because an effective disinfection agent (references 3, 4, 5) does not leave residue and is widely used in cell culture labs (reference 5).

Cleaning

With the microscope switched off and your gloves on:

> Remove visible dust:

Clean any visible dust on the display and stage using a dry soft tissue



> Clean accessible components which are frequently handled:

Moisten a soft tissue with 70% Ethanol

Slowly wipe the surface of accessible components frequently handled from top to bottom: the aperture diaphragm lever, phase turret wheel, light intensity wheel, and focus knobs.



> Clean microscope stage:

Ensure the objective nosepiece is at the lowest magnification in the lowest Z position with the focus knob

Select a free position in the nosepiece or protect the objective from falling dirt with additional tissue

Extensively moisten (soaked, but not dripping wet) a new soft tissue in ethanol 70%

Slowly wipe the microscope stage in an "S"-shaped pattern, but do not go over the same area twice (Figure 3).



Figure 3. Cleaning Mateo TL stage in an "S" shaped pattern.

Important: Please ensure that ethanol is in contact with the surface for at least 30s (reference 3, 4, 5). If the surface dries too fast, repeat the procedure.

Note:

- > The microscope stage is in contact with your cell culture plates, therefore we recommend cleaning it between different users and potentially contaminated samples (or susceptible to contamination). If any liquid is spilled on the microscope stage, use a dry soft tissue, let it soak up the liquid, then throw it away. Perform the step 3 to reduce any risk of contamination.
- > If the liquid was poured to the objectives, please [contact Leica Microsystems service](#) for a professional cleaning

At the end, throw away the used tissues and gloves, preferentially into a biological waste container. The disposable gloves can be decontaminated with ethanol and should be changed frequently to minimize the risk of contamination.

If possible, **avoid impurities in the first place:**

- > Protect Mateo TL when not in use with the dust cover.
- > If you are using Mateo TL in the base configuration with 2 objectives installed, please do not remove the hole covers on the nosepiece where no objectives are installed.



Additional information:

- > If you are using Mateo TL in the base configuration with 2 objectives installed, please do not remove the hole covers on the nosepiece where no objectives are installed.
- > For Care and Maintenance guidelines refer to Mateo TL User Manual
- > For cleaning of accessible optical components, such as the front lens of objectives, please refer to our information on cleaning optical components available on the Leica [website](#).
- > In the case of major contamination or difficulty in finding the source of contamination compromising the optical quality, we recommend contacting your local Leica service representative: [Contact us online](#).
- > Internal optical components must be cleaned only by service engineers who are authorized by Leica Microsystems CMS GmbH.

References:

- > Segeritz, CP, Vallier, L, Cell Culture: Growing Cells as Model Systems In Vitro, Ch. 9 in Basic Science Methods for Clinical Researchers (2017, Elsevier) pp. 151-172, DOI: 10.1016/B978-0-12-803077-6.00009-6. <https://www.sciencedirect.com/science/article/pii/B9780128030776000096>
- > <https://www.leica-microsystems.com/science-lab/how-to-sanitize-a-microscope>
- > Gerlach M, Wolff S, Ludwig S, Schäfer W, Keiner B, Roth NJ, Widmer E. Rapid SARS-CoV-2 inactivation by commonly available chemicals on inanimate surfaces. J Hosp Infect. 2020 Nov;106(3):633-634. doi: 10.1016/j.jhin.2020.09.001. Epub 2020 Sep 9. PMID: 32916211; PMCID: PMC7480442.
- > Graziano MU, Graziano KU, Pinto FM, Bruna CQ, de Souza RQ, Lascala CA. Effectiveness of disinfection with alcohol 70% (w/v) of contaminated surfaces not previously cleaned. Rev Lat Am Enfermagem. 2013 Mar-Apr;21(2):618-23. doi: 10.1590/s0104-11692013000200020. PMID: 23797557.
- > European Collection of Authenticated Cell Cultures, ECACC Handbook - Fundamental Techniques in Cell Culture Laboratory Handbook, 4th Edition, 2018

Disclaimer

Please use this cleaning protocol as a recommendation. It does not replace a scientists' expertise, the advice of laboratory professionals, or the rules being used in your cell culture lab or microscopy facility. Leica Microsystems shall not be held responsible for and makes no representative claims as to the suitability or effectiveness of the decontamination method and/or disinfectant mentioned here. Leica Microsystems shall not be held responsible for any damage resulting from the sanitizing of Leica microscopes outside of the manufacturer's recommendations as written in the user manual. Using methods which deviate from the recommended one is done at the own risk and sole responsibility of the user and can void the warranty.

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