“With the user, for the user”
Leica Microsystems

The statement by Ernst Leitz in 1907, “with the user, for the user,” describes the fruitful collaboration with end users and driving force of innovation at Leica Microsystems. We have developed five brand values to live up to this tradition: Pioneering, High-end Quality, Team Spirit, Dedication to Science, and Continuous Improvement. For us, living up to these values means: Living up to Life.

Leica Microsystems – Active worldwide

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and representatives in more than 100 countries

Leica Microsystems operates globally in four divisions, where we rank with the market leaders

• Life Science Division
• Industry Division
• Biosystems Division
• Surgical Division

Cleaning of Microscope Optics

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1 Considerations before cleaning
Which image quality do you expect?
Optimize all microscope settings:
- Aperture, Köhler, correction ring, etc.
Check your specimen
- Use standard with proven quality
- Use cleaned specimen
Check slide and cover glass
- Check immersion medium
  - Same type as embedding medium of specimen
  - Is immersion medium from the same lot?
  - Only use recommended types
  - No Anisol

2 Where to clean and where not
Where to clean
- Front lens of objective
- Cover glass of camera sensor
- Cover slip and specimen slide
- C-mount
- Condenser lens
- Misc. glass surfaces
Where not to clean
- Filter cubes
- All inside optics of a microscope

3 How to locate dirt
Turn camera and inspect image
- If dirt is turning in the image ➞ not located in camera
- If dirt stays ➞ camera
Turn objective, condenser, C-mount
- If dirt is turning with image ➞ objective, condenser, etc.
Control the relevant elements macroscopically
- Magnifying glass or oculars upside down
Front lens
- Turn it
- Look from the back against a bright background

4 Different kinds of dirt
Loosely or not permanently attached dirt
- Glass (broken slides, cover slips, etc.)
- Skin, dander
- Pollen, etc.
Attached dirt
- Water soluble
- Solvent soluble
- In practice often a mixture

5 How to clean
Aim of cleaning
- Complete elimination of dust and dirt for perfect image quality
- No remaining residues on the optical parts
- No damage of optical parts
General procedure
- Locate dirt
- Inspect dirt
- Remove dust
- Remove water soluble dirt
- Remove solvent soluble dirt
- Inspect result
- Repeat from III to VI if necessary
Remove dust
- If possible do it manually
- Only use specified compressed air
  - Contamination with oil may cause difficulties to remove residues
- Perfect tool: bellows
Remove attached dirt
- Never use rubbing materials, papers, microfibre cloths
- Never clean dry
- Always start to clean water soluble dirt
  - If you can see grease start with solvents
- All solvents for cleaning should be absolutely clean
  - PA solvents (ultra pure)
  - Destilled or demineralized water
  - No ammonium containing glass cleaner like Sidolin, Sparkle, etc.
- All tools should be absolutely clean
  - Use certified wound cotton sticks and dental cotton pads to avoid lint (no Q-tips or similar!)

Remove water soluble dirt
- Use only clean, deionised water
  - Simple method: breathe upon the surface
- Use a cotton stick
  - Clean from the centre toward the edge in concentric circles
- Inspect result

Remove solvent soluble dirt
- Use ultra pure solvents
  - Ethanol PA
  - Acetone PA (be careful, may harm plastics and objective labels)
- Use a cotton stick, dental cotton pad
  - Cotton stick and cotton pad should only be moist, not dropping wet
- Clean from the centre toward the edge in concentric circles
- Inspect result
- Still smudgy?
  - Combine the methods: breathe upon the surface and clean with cotton stick and acetone

Leica Optics Cleaning Kit
Order number 11505508