Leica MICROSYSTEMS

www.leica-microsystems.de

From Eye to Insight

Leica MICROSYSTEMS

CLEANING OF MICROSCOPE OPTICS

1 Considerations before cleaning

Which image quality do you expect?

Optimize all microscope settings:

Aperture, Köhler, correction ring, etc.

Check your specimen

I Use standard with proven quality

II Use cleaned specimen

Check slide and cover glass

Check immersion medium

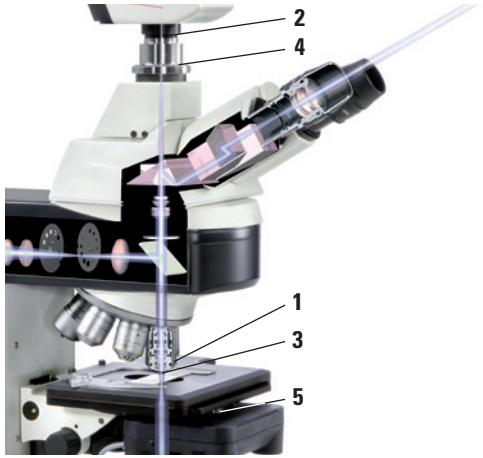
I Same type as embedding medium of specimen

II Is immersion medium from the same lot?

III Only use recommended types

IV No Anisol

2 Where to clean and where not



Where to clean

1 Front lens of objective

2 Cover glass of camera sensor

3 Cover slip and specimen slide

4 C-mount

5 Condenser lens

6 Misc. glass surfaces

Where not to clean

I Filter cubes

II All inside optics of a microscope

3 How to locate dirt

Turn camera and inspect image

I If dirt is turning in the image → not located in camera

II If dirt stays → camera

Turn objective, condenser, C-mount

I If dirt is turning with image → objective, condenser, etc.

Control the relevant elements macroscopically

I Magnifying glass or oculars upside down

Front lens

I Turn it

II Look from the back against a bright background

4 Different kinds of dirt

Loosely or not permanently attached dirt

I Glass (broken slides, cover slips, etc.)

II Skin, dander

III Pollen, etc.

Attached dirt

I Water soluble

II Solvent soluble

III In practice often a mixture

5 How to clean

Aim of cleaning

I Complete elimination of dust and dirt for perfect image quality

II No remaining residues on the optical parts

III No damage of optical parts

General procedure

I Locate dirt

II Inspect dirt

III Remove dust

IV Remove water soluble dirt

V Remove solvent soluble dirt

VI Inspect result

VII Repeat from **III** to **VI** if necessary

Remove dust

I If possible do it manually

II Only use specified compressed air

a Contamination with oil may cause difficulties to remove residues

III Perfect tool: bellows

Remove attached dirt

I Never use rubbing materials, papers, microfibre cloths

II Never clean dry

III Always start to clean water soluble dirt

a If you can see grease start with solvents

IV All solvents for cleaning should be absolutely clean

a PA solvents (ultra pure)

b Destilled or demineralized water

c No ammonium containing glass cleaner like Sidolin, Sparkle, etc.

V All tools should be absolutely clean

a Use certified wound cotton sticks and dental cotton pads to avoid lint (no Q-tips or similar!)

Remove water soluble dirt

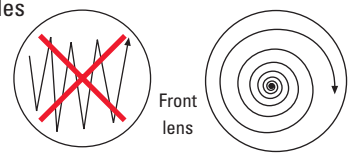
I Use only clean, deionised water

a Simple method: breathe upon the surface

II Use a cotton stick

a Clean from the centre toward the edge in concentric circles

III Inspect result



Remove solvent soluble dirt

I Use ultra pure solvents

a Ethanol PA

b Acetone PA (be careful, may harm plastics and objective labels)

II Use a cotton stick, dental cotton pad

a Cotton stick and cotton pad should only be moist, not dropping wet

b Clean from the centre toward the edge in concentric circles

III Inspect result

IV Still smudgy?

a Combine the methods: breathe upon the surface and clean with cotton stick and acetone

Leica Optics Cleaning Kit

Order number **11505508**