

# How to detect dirt on microscope

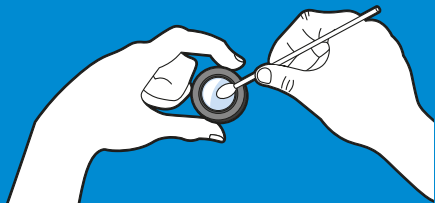


Seeing beyond

Clean optics are essential for successful microscopy and perfect images.

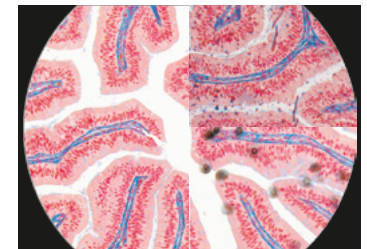
The closer any dirt is to the object or to a camera sensor, the greater is its effect on the live or recorded image.

But how to know, where the dirt comes from? Is it on the camera sensor, the objective lenses or the eyepiece? Or are there some debris in the sample itself?

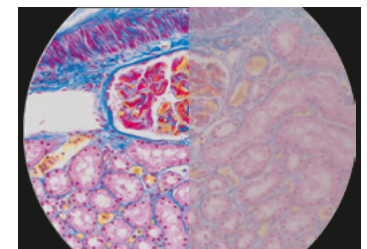


## To locate the dirt, proceed as follows:

- 1** A macroscopic check for larger dust particles and scratches on optical surfaces can be carried out using an eyepiece viewed through the reverse aperture.
- !** The affected optical surface is identified when a suspected optical component **is moved** and the dirt follows this movement.
- 2** Köhler your microscope. Check the condenser while moving it up and down and if applicable, by swiveling the front lens slightly.
- 3** Check the slide and cover slip by moving the specimen while focusing initially on the upper and then the lower surfaces.
- 4** Carefully rotate the objectives a small amount within their thread.  
**Note:** A completely blurred image can result either from spherical aberration or a completely soiled objective front lens. A soiled objective front lens is easily identified by examining an evenly lit surface through the rear aperture of the objective.
- 5** Slightly rotate the eyepieces.
- !** Dirt located within the camera **will not move** when the camera is moved.
- 6** Carefully rotate the cameras a small amount within their thread.



Clean optics (left), dust on the cover of the light exit opening of the illuminated field diaphragm (top right), and extremely soiled camera (bottom right). Small intestine of a frog, stained with Azan. Plan-APOCHROMAT 10 / 0.45, brightfield



Clean (left) and oil-soiled (right) front lens of a Plan-APOCHROMAT 20 / 0.80 objective. Toad kidney, trichrome staining, brightfield