



Edmund
optics | america

**CLEANING
OPTICS**



After purchasing an optical component, exercising proper care can maintain its quality and extend its usable lifetime. Choosing the proper cleaning supplies and using the proper techniques are as important as cleaning the component itself. Improper cleaning practices can damage polished surfaces or specialized coatings that have been used on a substrate or lens. Damage to the surface of the glass or coating can degrade the performance in almost any application. Always check with the manufacturer of the component to determine proper care and cleaning procedures.

FOLLOW THESE 5 TIPS FOR HANDLING OPTICS TO KEEP THEM IN GOOD CONDITION:

1. Always handle optics by the edges, never touch the optical surface with your fingertips. The moisture on you fingertips can sometimes damage the coating on optics, and if a fingerprint is left on an optical surface for a long time, it can become a permanent stain. Even if you are wearing gloves, avoid touching the optical surface.
2. Never handle optics with metal implements or tweezers. Reduce the chance of damage by using wooden, bamboo, or plastic implements to handle optics. Vacuum pens are handy for small optics.
3. Always place an optic on a soft surface, especially if the optical surface is convex. Resting on a hard tabletop can cause scratches in the surface.
4. For lens systems or assemblies, always replace the lens cap when not in use to protect the optical surface from damage.
5. To store optics, wrap them individually in clean, lint free lens tissue and put in a safe place. Never store unwrapped optics together in a box or bag, as they will damage each other if they touch. Never store optics with heavier items on top of them.

MATERIALS TO USE WHEN CLEANING OPTICS:



Materials used for cleaning most optical components include pressurized gas (filtered dry nitrogen), lint-free lens tissue, mild soap, lint-free cotton swabs, lint or powder-free gloves and an organic solvent, such as reagent-grade isopropyl alcohol, reagent-grade acetone, or lens cleaning solution. The following are general guidelines but, because results differ, there are no guarantees.

LENSES:



Dust is the most common contaminant and can usually be removed using pressurized gas. If more cleaning is necessary, hold the lens in lens tissue and apply a few drops of reagent-grade acetone or lens cleaning solution. Slowly turn the lens while applying pressure in the center and working outward, to pull dirt off the lens instead of redistributing it on the surface. Fingerprints on a coated lens should be cleaned as soon as possible to avoid staining or damaging the optic. Larger dirt particles, however, should be removed with a dust-free blower before attempting to clean the optic with lens tissue. Larger particles trapped under the cloth will scratch the surface you are attempting to clean. If the lens is still dirty after using acetone - for instance, if the oil was just redistributed and not cleaned off the optic - then a mild soap solution can be used to gently wash the lens. Repeat the procedure with acetone to eliminate streaks and soap residue.

MIRRORS & LARGER OPTICS:



After blowing off dirt and dust with pressurized gas, the drag method of cleaning can be used to remove fingerprints or other contaminants. In the drag method, lens tissue saturated with reagent-grade isopropyl alcohol or reagent-grade acetone is slowly dragged across the surface. If done correctly, the solvent will evaporate uniformly without leaving streaks or spots. Bare metallic coatings are delicate and cannot be cleaned in this manner. Dirt and fingerprints will permanently damage a bare metal-coated mirror, so preventive measures should be taken to prolong the lifetime of the coating.

MICRO-LENSES



These lenses may also be cleaned using acetone but, due to their extremely small size, they require special handling and care. Delicate tweezers may be used to securely hold a micro-lens by its edge, or a vacuum pick-up tool may be used.