# How Do I Apply Adhesives?

## Preparation

**Optics:** Use a bulb blower to remove dust and loose dirt. Put a lens-cleaning cloth or another soft cotton cloth (such as Opto-Wipes™) on the optics and use a pipette to apply several drops of alcohol to the cloth. Make sure the alcohol is chemically pure. Then drag the cloth slowly over the optics. To remove fingerprints or similar impurities, proceed as described above or soak a cotton-tipped stick in alcohol and wipe it across the optics in an "S" shaped motion.

**Optics holder:** The holder must also be cleaned and freed of dust and grease. To do this, wipe it with a soft cloth, using a small amount of a grease-cutting detergent (such as dishwashing liquid) if necessary. Wipe again afterwards with a fresh cloth to remove any residues.

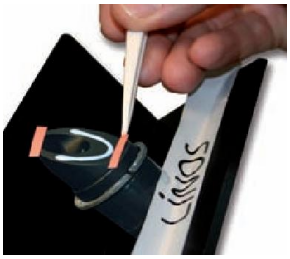
## Adhesives

Which types of adhesives you should use depends on the types of optics you wish to cement. For mirrors, use an elastic two-component adhesive for a uniform curing and tension-free hold. For components such as beamsplitter cubes or plates, a UV adhesive is ideal. As the name indicates, UV light is applied to cure the adhesive.

Two-sided tape strips are commonly used in research and development laboratories. These are well-suited for quick experimental setups, particularly if the optic is removed from the carrier afterwards. They are not recommended, however, for long-term use; due to their elasticity and susceptibility to vibration, it is impossible to ensure that the position of the optics is maintained.

To keep the need for cleaning to a minimum, wear latex gloves or lint-free cotton gloves when unpacking and setting up the equipment and make sure all work surfaces are clean.

Applying adhesive in spots between optics and contact surface of the holder

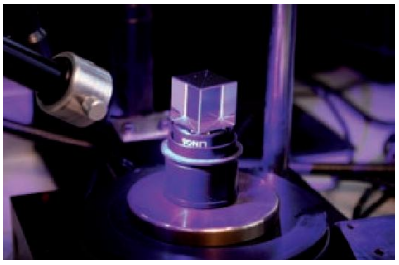


Positioning paper strips as spacers on a mirror mount

## Tips for cementing optics

Even if a liquid adhesive is used, the optics can be removed later only if the adhesive is applied in discrete spots on the edge of the optics. Affix the optics holder to your work surface with adhesive strips, making sure the glued surface is on the horizontal plane to prevent slippage, until the adhesive is cured. To ensure an even layer of adhesive, lay two strips of paper as spacers on the optics carrier and press the optics until the adhesive reaches the paper. Once the adhesive has cured, you can remove the paper. This method also prevents the adhesive from leaking out between the optics and the holder when the parts are pressed together. The use of a cotton swab is recommended to prevent damage when aligning and pressing down on the optics.


Pressing down and repositioning a mirror on the fixed mirror mount



Beamsplitter cube illuminated by a UV light source