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Cleaning Procedures for Telescope Mirrors

The following procedures for cleaning your coated optics have been used in many coating labs for surface treatment of metal optics as well as the final cleaning of aluminized optics.

Full Aperture Cleaning

Introduction:

One person can easily clean their secondary mirror using this procedure. On larger optics one person may still be able to complete the procedure. However a second person could be helpful in tipping the mirror. The key to this procedure is to never let the coated surface dry until the final step is completed. Though this procedure may seem intimidating, with practice it will become easier and should help in providing the best imaging and longevity to your mirror. CLEAR SKIES!!

Materials:

1-2 gallons of De-Ionized or Distilled H₂O; Sodium Lauryl Sulfate Soap (Joy, Palmolive, or ORVUS-found at veterinary supply stores); High pressure duster (available at a office supply store) of preferably High Pressure Dry Nitrogen; 1-2 quarts Fresh Acetone or 2 Propanol (Alcohol) available at local chemical supply (i.e. VWR, J.T. Baker, Fisher); cotton or multilith pads, lens tissue (preferably) or facial tissue; 4 quart pan or equivalent.

Procedure:

1. Mix 1 teaspoon soap and two quarts of H₂O in pan.
2. Placing the mirror on a flat surface slightly elevate one side and blow off any dust or dirt which has accumulated on the surface.
3. Repeat the procedure with H₂O to minimize any contaminant which may scratch the surface during the contact cleaning.
4. Leaving the mirror on a flat surface immediately begin to gently wash the mirror surface with soap solution and

cotton pad never letting the H₂O dry on the surface, Should the H₂O or soap solution dry on the surface a stain may result, If so repeat the entire procedure gently rubbing the stained area as well as the entire surface.

5. Leaving the mirror on the flat surface rinse the mirror with the remaining H₂O to remove all the soap solution.
6. Leaving the on the flat surface rinse the mirror with the acetone or alcohol until the H₂O has been flushed from the surface.
7. Slightly elevating the mirror and using a back and forth motion blow the solvent off the mirror until dry.
8. Check the mirror for stains, if so repeat steps 3 through 7.
9. Dry the edges with tissue before lifting to avoid any streaks from remaining H₂O etc.

Limited Aperture Cleaning

Introduction:

This procedure is for spot cleaning a mirror *insitu* due to moisture staining or other contamination.

Materials:

Lens or facial tissue; 1 quart Fresh Acetone or 2 Propanol.

Procedure:

1. Double fold tissue so you form a pad and when wet with solvent will not break.
2. Huff (breathe) on the area where the stain lies and wipe In one direction to remove the contamination.
3. Slightly dampen a second tissue with solvent and lightly wipe the area to remove the streak left by the first wipe.
4. Repeat step 3 until there is no visible streak left.
5. To check the cleaned area, huff on the component again. As the vapor releases from the surface, with inspection you will be able to detect whether the surface is still streaked or is now clean.



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