



### **TELESCOPE MIRROR CLEANING PROCEDURE**

Supplies: distilled water, liquid dish washing detergent, acetone, 3" or 4" width sterile cotton gauze - Kerlix or 100% cotton squares available at Walmart, trigger spray bottle - US Plastics Corp #66059, 1-800-537-9724, 6 Ounce Boston laboratory bottle with Yorker dispensing cap - US Plastic Corp #66104, 1-800-537-9724, soft white cotton washcloth, 6" to 8" diameter Manton laboratory cork ring – Optics Planet # M3-LB-55015, 1-800-504-5897, thin green nitrile gloves - powder free.

Procedure: Part 1 Remove the mirror from the telescope and carefully clean the back, edge sidewall and bevel using water and a clean soft cotton cloth. The diagonal may be rinsed using distilled water instead of wiping with a cloth. Place the primary mirror on a large sturdy worktable in the vertical position and trigger spray the optical surface from top to bottom several times with distilled water to loosen and remove dust. You may want to place a towel under the optic for this. Note: please have someone help you if your mirror is 16" or more in diameter. Next, place the mirror face up on top of the cork ring. The cork ring acts as a table for the mirror. Make sure the optic is well centered for stability. Spray the mirror with distilled water and place two or three drops of liquid detergent at the center. Stack two or three cotton squares and spray them with distilled water and soak-up the detergent. Then, gently drag the cotton squares in a spiraling motion from the center of the mirror and work your way out towards the edge. If the cotton becomes excessively soiled, say halfway, use a new freshly wetted cotton wipe and a small amount of detergent and continue. Always use the smallest amount of detergent possible as an excessive amount makes it very difficult to remove. Next, tip the mirror up to the vertical position and trigger spray it with distilled water several times. Always spray rinse from top to bottom to remove the detergent. Use a hair dryer to blow the water droplets off the optical surface, then wipe the edge and back dry with a clean cotton cloth. This cleaning procedure can be used out in the field and even with the mirror in the telescope for 18" and larger diameters. Please note that you cannot clean the edge sidewall and the back of the mirror if you elect to clean it in the telescope. Use the same procedure for the diagonal mirror.

Procedure: Part 2 This procedure is for the once or twice a year "*Super-Cleaning*". Use the procedure described in Part 1 but do not blow the water droplets off the mirror. Place the wet optic face-up on the cork ring. Have plenty of cotton squares or Kerlix ready to use. Wear the nitrile gloves when handling the cotton and acetone. Nitrile is insoluble in acetone and will prevent contamination of the cotton. Place a small amount of acetone (extremely flammable) into the polyethylene Boston laboratory bottle. Stack two or three cotton squares and drip a small amount of acetone on them. Use just enough acetone to *slightly dampen* the cotton, do not soak it. Starting on one side of the mirror, wipe the optical surface with the cotton squares in straight lines coming towards you and work your way across the optic. When water droplets start to form in the trail of the wiping, discard the wipe and continue where you left off with a fresh wipe. Do not be concerned about any water droplets you may have missed, you will remove them on your way back across the surface. Continue with the wiping until you reach the opposite side and then work your way back across the optic using fresh cotton/acetone wipes as needed. Be sure to only use one side of the cotton for wiping. Tip: practice on a 6" or 8" shaving mirror.

Your mirror will be "*Super Clean*" at this point. If there are any localized streaks on the surface you may huff on that area with your breath and wipe with a fresh cotton/acetone wipe. If you work carefully, your optic will not be scratched or sleeked. The most important part of this procedure is to make absolutely sure that the bevel and edge of the mirror are clean. If your optic is scratched or sleeked, you may have dragged dirt onto the surface from the bevel and edge. Enjoy your "*Super-Clean*" optics.

***"GALAXY OPTICS" assumes no liability whatsoever for the use of acetone in this procedure. Acetone is extremely flammable. Use no sources of ignition near or around acetone.***

***Warning: The use of spray on film type optical cleaning agents will void your optical coating warranty.***