



**PROCESS SPECIFICATION**

TITLE  
**Large Optics and COC's Cleaning Procedures**

APPROVALS:	DATE	REV	DCN NO	BY	CHK	DCC	DATE
DRAWN: H. Armandula	1/27/99			n/a	n/a	n/a	n/a
CHECKED: D. Cook	1/27/99						
APPROVED: D. Coyne	1/27/99						
DCC RELEASE:							

**Equipment, Tools and Materials**

Class 100 laminar flow bench / sink  
 Deionized water , 18 Megohms, filtered (0.2 micron filter) at point of use  
 Dry nitrogen cylinder, 99.99% pure  
 Ionizing blow-off gun with 0.2 micron filter  
 Cleaning bowl  
 Holding Fixture  
 Hot plate  
 Particle free wipes Fastorb 820, Berkshire  
 Nitrilite, powder free gloves 93-112, Ansell-Edmont previously washed to remove surfactant or Ansell-Edmont Latex 90-576  
 Lens tissue "Lensx 90", Berkshire  
 Storage optic holder  
 Liquinox solution prepared as follows:  
 To 2 liters of filtered DI water; add 40 ml. of Liquinox detergent.  
 Place beaker on a hot plate.  
 While stirring the solution, increase temperature to 160 degrees F; once the temperature is reached, keep stirring for at least 15 minutes.  
 Remove from hot plate - Solution is ready to use.  
 Life shelf of the solution is one week while covered.

**Washing and Drying - Coated surfaces 1 and 2 -**

**These cleaning steps are formulated to remove heavy contamination from the optics and applies to optics without magnet assemblies.**

**To clean optics with magnet assemblies, exercise extreme caution when wiping around the magnet assemblies.**

All procedures listed under these Cleaning Procedures must be performed under a Class 100 laminar flow bench, while suited-up in clean room garments including, but not limited to: coat, booties, bonnet, gloves, facial mask. This applies to anyone handling or near any optics being cleaned.

Clean one coated surface at a time.

1. Place the optic to be cleaned in the appropriate cleaning fixture and, rest the fixture with the mirror sur-



## PROCESS SPECIFICATION

TITLE

### Large Optics and COC's Cleaning Procedures

face to be cleaned, facing down into the bowl.

2. Fill the cleaning bowl with warm (160 degrees F) Liquinox solution.
3. Soak the immersed surface in the solution until the temperature reaches 100 degrees F.
4. Remove the fixture / mirror from the bowl.
5. Rest the fixture / mirror on its side and at an angle, (to prevent water getting to the mirror's edge), allowing the mirror surface being cleaned to protrude into the sink.

Immediately spray the mirror surface with running DI water taking care no to wet the edge of the mirror.

Never allow any surface wetted with Liquinox to get dry!!!!

6. With a soft lens tissue, wetted with the detergent solution, wipe the bevels of the optic.

Discard the tissue.

7. With a fresh tissue, wetted with Liquinox solution, thoroughly and gently, with smooth and soft strokes, scrub the entire mirror surface.

Discard tissue.

8. Immediately rinse the mirror under running DI water, gently scrubbing all surfaces with a soft lens tissue.

Repeat the above step at least twice using a fresh tissue every time.

9. To final rinse, spray only deionized water over the coated surface for at **least** 10 seconds.

Stop the DI water flow.

NOTE: If the water does not sheets-off the mirror's surface at this time repeat steps 2 to 9.

10. Place the holding fixture / mirror, resting on its edge, over several sheets of soft lens tissue.

Dry around the bevel with tissue.

11. With the ionizing gun, utilizing pure, dry nitrogen and low pressure, (45-50 lbs./ in.2) slowly blow the bevel of the mirror and the surface starting from the top and working towards the bottom. Ensure that no water remains on the surface.



## PROCESS SPECIFICATION

TITLE

### Large Optics and COC's Cleaning Procedures

Once both surfaces are cleaned, remove mirror from holding fixture. Carefully wipe the edges with reagent grade acetone and isopropyl alcohol.

Store optic in the appropriate container.

Keep in a clean area until ready to use.