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Methanol Spray Optics Cleaning Procedure

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1 Introduction

The purpose of this document is to demonstrate how to clean optics by soaking them with methanol and then drying them with an ion gun. This procedure was developed at LHO with Betsy Bland and Lisa Barsotti as an alternative to drag wiping small optics (of size $\leq 4''$) that have large particulates on them. Spraying down the optics as opposed to drag wiping them washes off the particulates without dragging them around. Similarly, the ion gun provides a gentler way of drying the optic. Reference the General Optics Cleaning Procedure, E1100439 to see which optics should be cleaned this way. Two people are needed for this procedure.

SAFETY NOTE:

Chemical splash goggles shall be worn when using the ion gun to dry off methanol.

The ion gun should be de-energized by disconnecting from the power source for at least 5 minutes prior to the use of the gun to ensure that the gun is de-energized. The ion gun should be kept unplugged at all times when using around any flammable solvents such as methanol, isopropyl alcohol or acetone.

2 Materials

1. Spectroscopic grade Methanol
2. Clean room gloves, VWR Part #79999-xxx
3. LED Flashlight (like Stinger from Copquest Part#10-1552-000)
4. Ion gun, Terra Univeral Part#2005-55 or equivalent
5. Cylinder of UHP nitrogen for the ion gun
6. TX1010 Alpha10 cleanroom wipes
7. clean glass petri dish
8. glass dropping bottle
9. chemical splash goggles

3 Procedure

1. Both people put on chemical splash goggles.
2. Line the clean petri dish with a couple cleanroom wipes
3. Fill a plastic squeeze bottle with spectroscopic grade methanol.
4. Fill a glass dropping bottle with spectroscopic grade methanol, $\sim 1/4$ full.

5. Wearing cleanroom gloves, stand optic on its barrel in the bottom of the petric dish. The first person grips the optic between their thumb and pointer finger, on the barrel. Avoid touching the optic's face as much as possible.
6. Second person picks up ion gun, makes sure it is unplugged, then tests pressure by pointing gun towards the floor and pressing trigger.
7. first person sprays down the optic with methanol from the squeeze bottle, completely soaking both faces and the barrel.
8. Second person quickly follows by drying optical face first, then barrel.
9. Dry the optic as uniformly as possible, and as fast as possible to avoid methanol pooling and drying on the surface. It is the most difficult to dry right where the first person is gripping the optic.
10. Inspect the optic with the bright LED flashlight. If there is anything still on the surface, especially dried methanol, give it a quick methanol drag wipe. Use methanol from a glass dropping bottle for this step.



Figure 1: Example of how to hold a 1" optic, in the cloth covered petric dish.