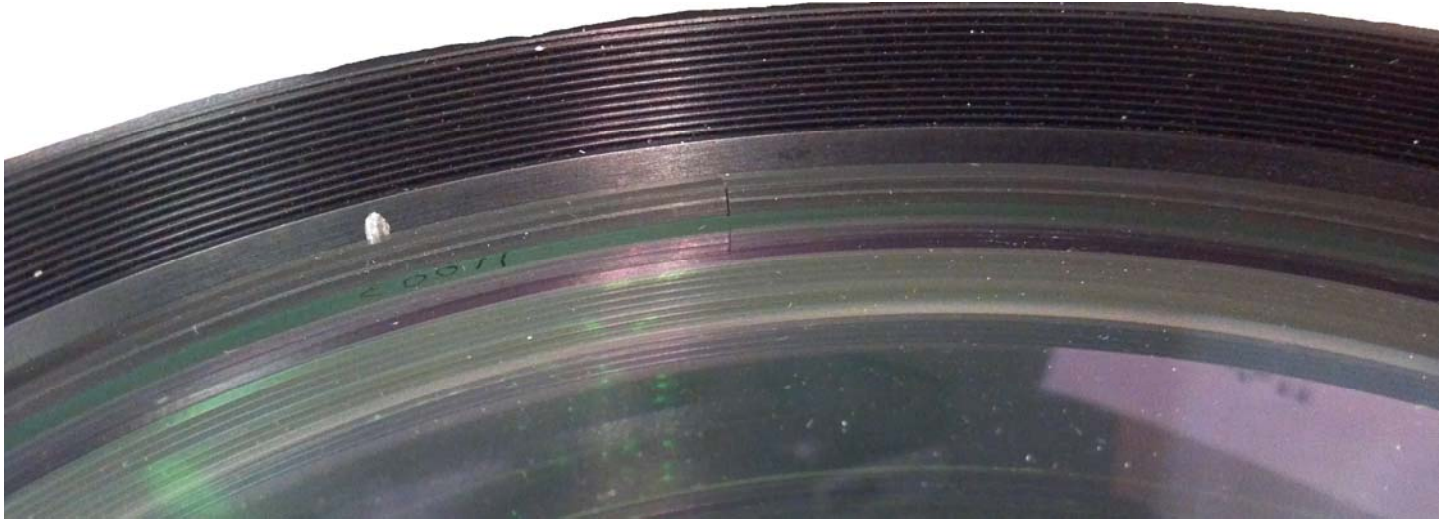


# Using ORings To Control First Contact™ Application

If refractor, eyepiece or filter retaining rings do not have a tight optic seal, polymer can wick under the ring be difficult to remove. Also, some are plastic and some have sealant or gaskets between the retaining ring and optic and can absorb the polymer. There are many designs and one never knows which allow wicking or have sealants or gaskets thus Photonic Cleaning Technologies recommends; **1.** Applying polymer close to, but not on the rings thus avoiding issues; or **2.** Using orings as a "dam" to stop polymer flow. EPDM material is suggested to reduce oring expansion during polymer application. Be aware, the oring is merely sitting on the surface without pressure and will not stop excessive amounts of polymer.

## Refractors



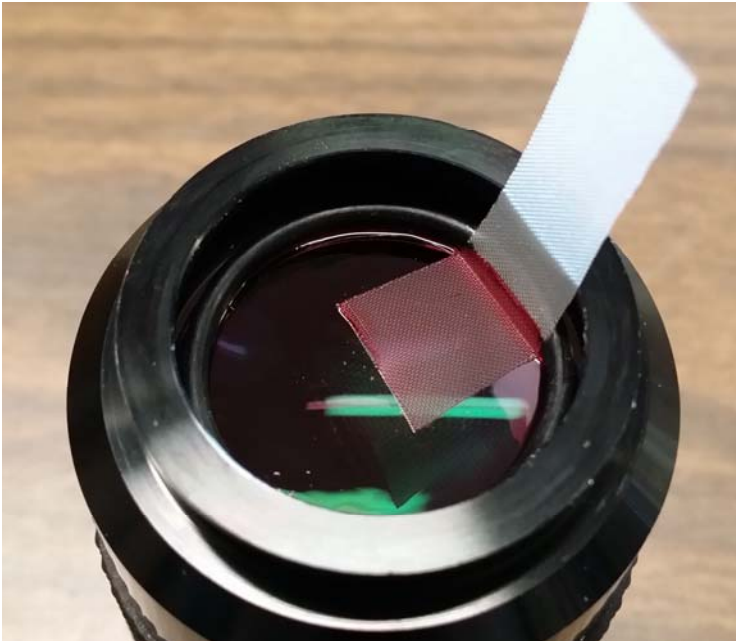
Here is an oring placed around the perimeter of the optic with ends butted together at the 12-o-clock position



Here is the optic partially coated with polymer with the oring acting as a dam to stop the polymer flow. Chemical resistant nylon mesh (FCNet) is embedded in the partially dried polymer as a handle to peel once dry

## Eyepieces and Filters

Eyepieces and filters have retaining rings just like refractors. On some the retaining ring is plastic making it even more crucial to protect from the solvent based polymer. Eyepieces and filters are small and EPDM orings are available from .5" to 5" in 1/16" increments for a good fit inside the retaining ring.



Orings placed inside eyepiece and filter. Note rubber eye cup is removed from eyepiece for photographing. Chemical resistant nylon mesh (FCNet) is embedded in the partially dried polymer as a handle to peel once dry

### Oring procedure:

1. If cleaning a refractor, point as horizontal as possible for easier polymer application. Set eyepieces/filters horizontal
2. Measure the ID of your refractor, eyepiece or filter. If manufactured orings are not available for your refractor, oring stock can be ordered and cut to fit inside the retaining ring. We carry a large variety of oring sizes to fit most optics; if necessary choose an oring slightly undersize as oversized orings will not sit evenly on the optic surface
3. Precoat the oring with polymer and allow to dry before setting in place. Reason: When the oring is set in place and polymer applied a very thin coat is stopped at the oring/optic mating surface and is typically too thin to peel properly. Precoating the oring makes this coat twice as thick and makes the dry film thick enough to peel once dry
4. Set the precoated oring in place once the polymer is dry. Drying will only take a couple minutes as film is very thin.
5. Apply the polymer:
  - For horizontal refractors, small amounts can be poured on the optic or dripped with a pipette, then spread with a brush. Load the brush with polymer so the bristles don't absorb the polymer when you first begin spreading. Use the polymer's surface tension to spread the polymer, avoid bending the bristles
  - If applying to a vertical optic dip brush in polymer and apply top to bottom. Don't let polymer pool at bottom edge
  - Remember refractor lenses are convex! Apply small amounts to avoid the polymer running to the optic edge
  - For eyepieces and filters, a pipette is recommended to control the polymer during application. Apply a few drops and spread with the applicator bottle brush.
6. Allow polymer to dry a couple minutes, set mesh in place along edge and brush more polymer over mesh to embed
7. Once the polymer is dry (15 minutes to 1 hour depending on thickness) grasp mesh and pull. It's best to pull at an angle to get the peel started, then just peel slowly. The oring and polymer should all peel as one.

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