

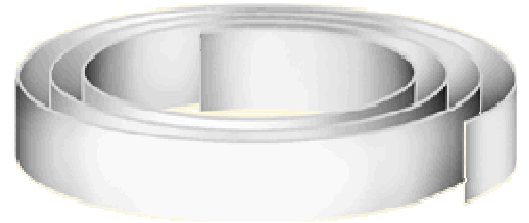
## Making an inexpensive filter cell for BAAADER AstroSolar TM Safety Film

**The film must be mounted flat and free of any tension - Only this will provide first class Solar images. The quality of this patent pending material is so high that any wrinkles or strain on the film will lead to a very noticeable deterioration of optical quality.**

When mounted carefully, AstroSolar TM Film can reach the quality levels of truly precision polished glass plates (not to compare with several glass filters made of ordinary window glass w/o ever having seen a polishing machine).

### The "Cylinder"

At first you have to produce a cylinder of cardboard, to exactly match the outer circumference of your Telescope tube or dew cap. In order to achieve this, cut a whole number of cardboard layers, approx. 5 -6cm (2 inches) wide. Wrap one piece of cardboard around your dew cap or lens cell and glue one end onto the other.



Fasten a second and third a.s.f. layer of cardboard in the same manner, until you have manufactured a stiff roll of cardboard, approx. 4 - 5mm thick. Watch out that the finished "cylinder" will slide snugly over the tube and that it will be easy to slide it on and off the telescope.

**Hint:** For telescopes with smaller aperture one could try to find an appropriate "poster tube" and cut off a piece of approx. 5 - 6cm length. Variations in diameter could be equalized by using adhesive felt liner or by gluing Kork pads into the paper tube.

### The "Filter Cell"

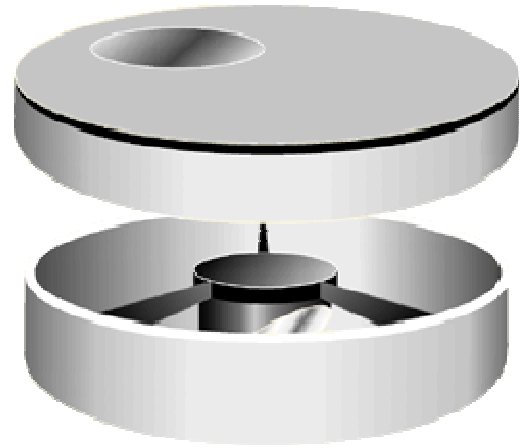
Cut out two rings of cardboard (each having 1 - 2mm thickness). The outer diameter of the ring - shaped cardboard should match the outer diameter of your fabricated "cylinder". The inner diameter should correspond to the actual aperture of the instrument (some mm less may improve on image quality, due to hiding sunken edges on imported objective lenses).

After having prepared two such rings, both should be equipped on adjacent sides with a large number of small cutouts of double tape along the outer circumference of both rings. Now comes the tricky part - how to get the Solar film onto the taped ring w/o wrinkles or ripples. The film must not be scratched - so put one sheet only of Kleenex (or other soft tissue) onto a flat table. Tape the Kleenex onto the table so that this part is stretched out evenly and cannot move on you. Only now put a square piece of film - (precut to the size of the cardboard-rings) onto the piece of soft tissue. Do not tape the film and do not stretch it! Just let it rest relaxed and flat on the Kleenex.



Now take the first cardboard ring and lower it straight down onto the film until every double tape clipping made contact with the film. Turn this package around, tape the other ring onto the opposite side and cut away the overleaf. Now your AstroSolar TM film should be mounted free from strain and wrinkles between the two cardboard rings. Finally glue this "filter holder" onto the prefabricated "Cylinder". Now your "Do it Yourself" filter is ready. Enjoy it - you just saved about US\$ 100 - for the filter cell alone.

When covering a larger Newtonian or Schmidt-Cassegrain Telescope for Solar Observation, then "Less may be More"! Do not try to make a filter as large as the the telescope aperture itself. The bigger aperture will greatly be compromised by air turbulence and secondary mirror obstruction. Rather produce an "off axis filter cell", to observe the sun with a smaller (but much improved) telescope, whereby an ordinary reflecting telescope may be raised in sharpness and definition to the level of a good refractor.



**Please observe the following safety precautions with EVERY solar observation**

1. Prior to each and every solar observation session, check the filters fit and - if necessary - tape it to prevent slipping. Never use the filter at the eyepiece, only attach it onto the front of the objective, in front of the Schmidt-plate (SC-owners) or in front of the tube of a Newtonian-telescope. Otherwise it can become dangerously hot inside your instrument and inside your eyes.
2. If you use a binocular, protect both objectives with a filter. Also make sure, that the viewfinder of your telescope is properly covered, either with foil or with the original dust cover. Unprotected views through your finderscope would have the same catastrophic consequences for your eyes as a look through the main telescope itself!
3. A filter made of foil is relatively resistant to breakage in comparison to a glass filter. However, care should be taken with sharp pointed objects.
4. Emphasize the importance of caution to those observing with you, especially children. Intentionally removing or damaging the filter can endanger their eyesight. This is no place for jokes. Never leave the telescope outside unattended during the daytime!