

Original BAADER AstroSolar™ Safety Film

For construction of high-quality objective-filters for observing the sun with binoculars, camera or telescope Specially CE-tested safety film with high-quality optical characteristics reduces intensity of sunlight by 99.999%



How to make your own objective solar filter for binoculars, camera or telescope

1. Wrap a strip of stiff cardboard about 3 - 4 cm wide around the objective aperture so that it fits snugly but can still be removed. Glue the ends together to form a ring.
2. Wrap a second strip, about 1 - 2 cm thinner, around the first and glue its ends together as well. After the glue has set, remove the second ring.
3. Cut off a piece of foil of appropriate size and lay it over the first ring (which should still be on the objective), then slide the second ring over the first, but only until it is flush with the side at the first ring on which the foil lies.
4. If necessary, gently tug on the edges of the foil until it fits smoothly. Do not stretch the foil during mounting. A slightly loose and wrinkle-free fit yields far better images than a tautly stretched foil.
5. Cut the edge of the foil so that 1 - 2 cm of overhang remain. Fold the foil back over the outer ring and wrap the entire assembly with tape so that the tape holds both rings and the foil firmly together. Of course you can also use glue for this purpose; take care to avoid getting glue on the front filter surface.

Your homemade solar filter is ready!

Technical Details / Certification

Baader-Planetarium's AstroSolar™ safety film is a specially manufactured streak- and blister-free foil only 0.012 mm thick, and attains the optical quality of plane-parallel glass filters. The base material is not "Mylar." The highly uniform molecular structure of this material is the result of research in nuclear and elementary particle physics. The coating is subject to constant quality control. Its reflective property of over 99,999% has been tested by the *Physikalisch-Technische Bundesanstalt* (the German Republic Bureau of Standards) and conformity with EU norm 89/686 is certified with the CE symbol. It reduces the intensity of sunlight by a factor of over 100,000. Coating on both sides of the foil ensures a highly uniform filtering, while neutralizing the occasional microscopic holes in the coating (which are also much more present in glass filters). One layer of this foil is sufficient for the construction of a safe, high-resolution solar filter. The quality of the solar image is immeasurably better than can be achieved by using so-called Mylar "rescue blankets" or similar materials, which must be used in several layers.

Please observe the following safety precautions

1. Before each and every solar observing session, check the filter's fit and, if necessary, tape it to prevent slipping. Never use the filter at the eyepiece (where you look into the telescope), only attach it onto the objective (where light enters the telescope); otherwise it can become dangerously hot inside the instrument - and inside the eyes! In the case of binoculars, be sure *both* objectives are securely covered; with cameras also cover the viewfinders front lens.
2. A filter made of this durable material is relatively resistant to breakage (even during intentional attempts) in comparison with a glass filter. However, care should be taken with sharp pointed objects. Also be aware that the coating can be damaged by scratching or rubbing and take this into account when storing the filter. A filter with damaged foil should be destroyed immediately to avoid accidental use.
3. 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!**
4. If your telescope has a finder, you should also put a filter on it, or put on its objective dust cover and secure it with tape. Unprotected viewing through the finder would have the same catastrophic consequences as through the main telescope. Additionally, an uncovered finder directed at the sun can produce exceedingly unpleasant scalp burns.

IMPORTANT TIPS FOR VISUAL SAFETY. PLEASE READ BEFORE USE

Avoid absolutely all forms of unprotected solar viewing! Your eyes could suffer irreparable damage. Smoked glass, darkened film negatives, CDs or doubled sunglasses do not offer sufficient protection, even at sunrise or sunset.

AstroSolar™ Safety Film reduces the intensity of incident sunlight by a factor of over 100,000. According to current medical research, the filter (when properly used) provides complete protection against thermal damage to the retina (photocoagulation).

Under certain circumstances, any intense source of light (e.g. spotlight, laserbeam, welding arc, the sun) can trigger so-called photo-toxic processes in the eye. In extreme cases, such reactions can have an additive effect over time, leading to deterioration of the vision. Please note: This filter provides protection against solar radiation similar to that offered by welding glasses. However, as long as it is not absolutely certain that even welders glasses completely hinder phototoxic reactions, the same reservations must apply to this solar filter.

Therefore, exercise your own best judgment when using this product.

Although we have never heard of a single case of eye damage in 10 years of sales of this product to thousands of telescope users, and knowing that welders ply their trade for years, while the solar filter's use can be measured in minutes, we believe it appropriate to inform you of the current state of scientific knowledge.

In any case, it is advisable to interrupt solar observation occasionally and look at other objects. If you have any doubts at all, especially in cases of known excessive eye sensitivity, consult your ophthalmologist or optician.

GUARANTEE

We guarantee the filtering capability of this solar safety film (reduction of light intensity by 99.999%). If your foil has arrived damaged, we will replace it free of charge. We cannot accept further liability, especially for cases of improper use.