

Black and White Infrared Film

Important things to remember

General Characteristics:

- Sensitive to ultraviolet, visible and Infrared light. Under all lighting conditions except tungsten light, it must be used with a filter to reveal the hidden infrared image.
- The film curls a lot after processing and the emulsion is very susceptible to scratches. Be careful with it and keep it in plastic sleeves.
- Some IR film does not have an anti-halation backing. This results in an extensive halo-like glow on bright objects and light sources.
- Efke and Rollei brand IR films come in 4" x 5" and 120 format. When shooting 35mm and 4 x5 IR films, THE FILM MUST BE LOADED AND UNLOADED IN TOTAL DARKNESS. Use of a changing bag in the field is a must! Medium format films may be loaded under very subdued light.
- Some modern cameras including some Nikon and Canon models use IR emitting LED's to control film advance. These cameras are unsuitable for IR film. If your camera has automatic film advance, check with the manufacturer to see if it uses IR emitting LED's. They will fog your film.
- It is recommended to cover the film window in the back of a camera with black gaff tape prior to loading the camera to prevent fogging of the film.
- Sometimes the film pressure plate in the back of the camera can cause some reflective exposure (fogging) when using an IR film that does not have an anti-halation backing. This is especially likely if the plate is silver instead of black and if it has dimples or windows for printing data. A solution for this problem is to securely tape a piece of thin black paper over the plate, however beware that this may cause a different problem because of the extra drag to be overcome by the film advance mechanism.
- If you have more than one lens for your camera it is recommended that you change lenses in subdued light.

Recommended Filtration

Wratten #89B Opaque: Dramatic IR effects, requires tripod, 4-5 stop filter factor

Wratten #29 Dark Red: More IR effects; can barely see through, 3.5-4 stop filter factor

Wratten #25 Red: Good IR effects; easy to see through, 2.5-3 stop filter factor

There are other opaque filters available but my tests have lead me to prefer the 89B filter because it allows more of the near infrared spectrum to expose the film.

Focusing

Infrared light is a longer wavelength than visible light and therefore does not focus on the same plane. You must correct for this manually by focusing on something somewhat closer to you than what you actually want to be sharp. Do not use auto focus for IR film or all your images will be sharp behind the subject. It is recommended to use apertures giving enough depth of field to allow for a small margin of error. Some lenses come equipped with a red dot or IR line that shows you on the barrel where to adjust the focus. If your lens has that feature, focus, then note the feet indication, then turn that indication to meet the IR dot or line. If your lens lacks that feature you have to guesstimate.

Exposure:

IR exposure is complicated and depends on many factors including type of light, quality of light, and color temperature of the light. It is important to read up on this information. The choices of infrared films has drastically decreased in recent years and I find that with 89B filter I use the Efke film at ISO 1 and the Rollei IR film at about ISO 25. The Efke film is lower contrast overall with a wider tonal range than the Rollei film. The advantage of the Rollei brand is the greater sensitivity.

Your use will likely require some testing so inspect your negatives to evaluate the best ISO setting to use. It is recommended that you bracket your exposures to cover your margin of error. Take copious notes of exposure, lighting conditions and filter used. When you are first testing, use a full sunny day to complete your tests and determine the correct ISO with your filters.

Tungsten has lots of IR light in it so when using tungsten lights, stop down 1-2 stops less exposure than recommended by your meter and do not use a filter. Take copious notes and bracket your exposures until you determine correct exposure procedures.

Processing:

You can affect contrast, density, grain and sharpness by experimenting with developer choices and development times. There is a risk that plastic developing tanks can transmit infrared light, especially if your room lights are tungsten. In plastic tanks it is recommended to conduct film processing under subdued florescent light only because florescent lights do not contain much infrared radiation. An extra precaution is to wrap your tank in aluminum foil or use a metal tank. Be aware that small changes to the development time make a significant difference in your results. Correct agitation is critical. Continuous for the first 5 seconds, then 1 inversion at 30-second intervals. More agitation will cause dense highlights that are hard to print or scan.

The chemistry that I recommend is a sensitivity enhancing fine grain type called Acu-1. I buy it from Freestyle Photographic where I also get my films.

You may want to adjust your time after processing your first roll. Aim for full shadow detail on the negative without overexposure of the highlights. If you are spending a lot of time burning in your highlights when you print with your first try you may want to give a touch more exposure to your film and a touch less development.

Pictorial Effects

This film is grainy, and that is part of its beauty. Your shots will be slightly less grainy if underexposed by 1/2 stop. You can boost the grain by overexposing up to 1 stop. 35mm infrared film becomes very soft at 11"x14" enlargements. If you wish to make large prints, medium or 4x5 formats are required. Foliage will look spectacular, and the blue sky will print anywhere from dark gray to black.

When printing with silver gelatin paper in the darkroom, the larger print you make, the lower the contrast will appear. Correct for this by slightly increasing contrast through printing filters. When photographing people, remember that everyone will look more pale than usual. Darker makeup is recommended as well as a blue or purple lip treatment. Lips will appear very pale without this makeup. Skin tones appear very even with infrared photography and this can produce flattering results.