

The Wonderful World of Filters

Part I The Polarizer

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Your first exposure to filters probably was when you bought your first 35mm camera and lens. The sales person probably said something like, “well that’s a big investment you just made, you should protect that lens with a UV or Skylight filter so the outer glass element doesn’t get damaged.” And you know what, he was right. It can protect from dirt, fingerprints, scratches & dented lens treads. However, it will only help if he sold you a filter of equal grade to the lens you just bought. A cheap piece of glass without multi-coating in front of a moderate to expensive lens is no help to your images. In fact, it will degrade your images and cause highlight flares.

What is the difference between uncoated & coated filters you ask? Nearly all lenses are multi-coated and even super multi-coated. Regular glass reflects 4% of light. Single coated glass reduces reflection by 50%. Multi-coated glass reduces reflection by 90%. Super multi-coated is the very best and equal the glass in many top grade lenses. So why in the world would you want to reflect 4% of your images light at the surface of a filter, before it even has a chance to go through your high quality lens.

Filters have an exposure compensation or filter factor which is the amount of light that is blocked from passing through a filter by its density of tinting. There is no need to worry about this with today’s Through-The-Lens (TTL) metering. Your camera’s light meter, which is situated behind the lens, will automatically adjust for the amount of light that is being held back by the filter. If your setting your exposures by a hand held light meter, then you must use the filter factor to adjust the reading from your hand held meter before setting your camera exposure.

The polarizing filter is “Gods gift to the photographer.” If you only buy one filter for your camera, let it be a polarizer. It improves all types of images, be it black & white, color or digital capture. Moreover, it works under all conditions, sunny, cloudy why even in the rain. The science behind the polarizer is that sunlight is scattered in the atmosphere in all directions. The polarizer reduces if not eliminates all but one plane of light waves, thus allowing only saturated pure color hues in your images. It is this scattered light, which causes highlight reflections and pale skies, and prevents the true color of objects from showing in your images. There are “sweet spots” in the sky where the polarizer will give maximum performance. To find these spots, which are 90 degrees to the sun, use the “finger gun method”. Point your finger, like a gun at the sun, with your thumb extended straight up. Now, rotate your hand around as your finger is pointed toward the sun, the arc in the sky where your thumb is pointing is the “sweet spot” where the polarizer will give maximum effect. Therefore, at two points on the horizon the polarizer will darken the sky to a royal blue and punch up the contrast with any white clouds that may exist. The sky 90 degrees to these two “sweet spots” will not show as much darkening of the blue sky. Usually, these two non-polarizing points in the sky are looking toward and directly away from the sun. These can become a distraction in an extreme wide angle or panoramic shot where half of the sky in the image will be darkly polarized and the other half much less darkened.

Polarizing filter mechanics consist of two rings, one screws into the lens, the other rotates independently at the front of the filter. Every 180 degrees of rotation the polarizer will give maximum effect, 90 degree from the two maximum points is the polarizer's minimum point of effect. Do not feel that you must use your polarizer at maximum effect for every shot. In fact, there are times when you need to back it off maximum. When shooting at high altitudes and the desert southwest where the atmosphere is thinner, extremely clear and cleaner, use an exposure check to see if the blue sky will be rendered too dark. With the polarizer on your lens and turned to maximum effect, meter the land in the foreground, then meter the sky, if there is more than two stops difference you may want to back off the polarizer from it's maximum setting. To learn how the polarizer effects your images shoot with and without the polarizer, and also set it to different degrees of darkening and see for yourself.

What is the difference between linear and circular polarizers? Simply, today's modern auto-focus cameras, which work though the lens require the circular type, older manual focusing cameras, can use the linear type. A new twist is the combination of a polarizing filter with 81A warming filter; these are called a warm(ing) polarizers. Personally, I love this added warmth that is archived with a warm polarizer, and virtually never take it off my camera. Be aware that if you are using a highly saturated film like, Kodak's Elite Extra Color EBX, & E100-VS, or Fuji Velvia ISO 50, using a warming filter may overly accentuate the colors in an already bright and vivid scene. That is why I also pack a neutral polarizer for those rare occasions that do not require the added warmth. Another means to adding punch and color to polarized images is to use variable-color polarizers. These strange hybrids are polarizers with two complimentary colors added into the construction of the filter. The most popular color combination is the blue/yellow by Cokin and blue/gold by Singh-Ray. They work this way, at two points of rotation, the filter will darken the sky and add its blue color effect; at the other two points of rotation, it will add its yellow/gold effect. Some of the other color combinations are red/blue, red/green & orange/purple. There is a danger in using this filter when water or wet areas exist. The characteristics of this filter will add their color effects to the white highlights that exist on the surface of water or wet areas. In most cases, this is not a natural appearance for streams, waterfalls or wet coastal rocks. On the other hand, an urban scene with colored wet city street might be just the thing to add a unique look to an image.

As with all things, there are disadvantages that come with the advantages. The Pros as been stated are the reduction and/or eliminate of glare and reflections from wet surfaces, water, glass & metal surfaces. This increases the able of film or digital capture to see the true color hue and produce it in a saturated and vivid manner. It will cut atmospheric haze and darkens blue skies. You can see the effect through the lens as you rotate the filter and compose your image. An additional feature of polarizers is it can also be used as a neutral density filter for slower shutter speeds under bright lighting conditions. Let's say your trying to photography a water fall and create that cotton candy blur effect, but the lighting is so bright even with the lens stopped down all the way your shutter speed is still not down as lower as you like or need. By adding the polarizer filter to your lens you will not only gain better definition of the flowing water by reducing reflections, but you will also slow the shutter two stops for added blur effect.

Slowing down the shutter may not be what you need or want in other situations. All polarizers will cause the loss of light. The average loss is two stops. When photographing sport/action movement or wildlife in dim early morning or early evening light, the loss of two stops may be an unacceptable factor. Polarizers are twice as thick as other filters and can cause vignetting on wide-angle lenses less than 24mm. New slim models of polarizers are now available which eliminate or at least greatly reduce the chance of vignetting. Another way to prevent vignetting is to buy filters larger than you need and use stepping rings to the different size lens openings of your lenses. By doing this you only need to have one filter of each type that will fit all the lenses you own. As in most cases, you get what you pay for. Trying to save money by buying a cheap polarizer may cost you a colorcast in your images, where a high quality true neutral density polarizer will not shift the coloration of the scene at all.

I hope that I have showed you the many benefit that polarizing filters have to offer. I know a large majority of my images are as good as they are because of the use of a polarizer. It is truly a wonderful world when viewed through the effects of the photographer's greatest accessory, the polarizer.