B+W SPECIAL
What photographer wouldn’t love to leave the beaten path and create pictures that stand out, fascinate, perhaps even take one’s breath away? To show objects or landscapes as no eye would see them in nature is an irresistible challenge. A large selection of B+W Special Filters can help you to take on this challenge and master it with perfection.

B+W filters that transmit ultraviolet or infrared light, but which block or severely limit the visible spectrum can reveal otherwise hidden worlds, when used in conjunction with appropriately sensitized films.

On the other hand, different B+W Special Filters prevent disturbing light and radiation that distorts the pictorial impression from passing through the lens and reaching the film. The B+W Special Filter FL-Day should be an indispensable accessory for every photographer, because it suppresses the green hue of the light emitted by fluorescent tubes. While inconspicuous to our eyes, it can cause an unpleasant green cast in color photographs.

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DIGITAL

B+W Filter Tip: Available Light

Nearly every color cast can be corrected by means of a B+W (Special) Filter on the lens – provided that a uniform kind of light illuminates the subject.

Things become problematic, however, in mixed light sources, such as electronic flash used in addition to fluorescent light illumination, e.g. in an office shot or in a shop. Because a B+W Filter F-Day will not only eliminate the green cast of fluorescent light – it will, of course, also filter the daylight color of flash illumination that would otherwise produce neutral colors on color film!

There are two solutions for such problems:
1. Strongly reduce the intensity of the flash (by about two to three f-stops), so that there will only be a subtle fill-in effect in the shadows, and its differing color will not be conspicuous.
2. Eliminate the flash altogether and expose only with available light. Fill-in shadows with a bouncer (white cardboard, sheet or foam plate) if possible.
**B+W Fluorescent Light Filter 499 F-Day**

This B+W Special Filter eliminates the green cast that occurs when daylight-type color film is in fluorescent lighting. Examples are interior photographs made in offices, reception areas, factory halls, subway stations and swimming pool halls, as well as nighttime photographs of office buildings whose windows would appear green because their interiors are usually illuminated with fluorescent tubes. The abbreviation F-Day stands for “Fluorescent Light - Daylight”, which reflects the fact that these filters are designed for the most commonly used type of fluorescent tube, which emit light of a color that, as mentioned above, resembles daylight. Because fluorescent tubes are not “thermal radiators”, they do not produce a continuous spectrum like those of the sun and incandescent bulbs. Instead, they emit a sharply defined line spectrum that has high intensity spikes in the green region. Our eyes barely perceive this special green, so the fluorescent light appears to us as nearly neutral in color. However, most color films are especially sensitive to those wavelengths and they react with a strong pronounced cast. Photographers using color temperature meters for three color metering (simple meters that measure only two colors are not suitable for this purpose) can also undertake the correct filtering with of a combination of LB- and CC filters (see pages 17 - 23). With this method, they can also correct the light emitted by other types of fluorescent tubes, such as Warm Tone, Standard Light, White Light, etc. But for hobby photographers who do not wish to make a large investment in such an instrument and who do not care to carry along a selection of LB- and CC filters, the B+W F-Day Filter is far less expensive and much more practical. Its filter factor is approximately 2.

**B+W UV Black Filter 403**

Not to be confused with UV-blocking filters that photographers normally refer to as “UV Filters”, this one passes UV A radiation (320 to 385 nm), but blocks visible light and looks pitch-black to our eyes. It is used with appropriately sensitized films in such applications as ultraviolet reflection photography in forensics or in materials research, but also as filters on UV-emitters for fluorescence photography. Depending on the illumination and on the film’s sensitization, its filter factor is in the range of 8 to 20.

**B+W UV-Blocking Filter 415 (= 2 B)**

This sharp-cutting, nearly colorless B+W filter blocks UV radiation up to the limit of visible light. It is used in ultraviolet fluorescence photography for the prevention of unsharpness caused by the intense UV illumination (which is due to chromatic aberration in the UV range). It can also prevent the fluorescence that may occur in the cement between lens elements. Because of the usually rather colorful fluorescent subjects, the delicate yellow cast in color photographs is negligible. Its filter factor is 1.

**B+W UV-Blocking Filter 420 (= 2 A)**

This even more stringent UV-blocking filter behaves like the filter 415 described above, except that its filtering slope completely blocks the UV radiation all the way into the visible violet region. As a result, it has a noticeably yellow tint. It is used for fluorescence photography on black-and-white film, where it is even more effective. Its filter factor is 1.2.

**B+W Digital UV-/IR-Blocking Filter 486**

This B+W Interference Filter has a completely colorless glass carrier coated with a number of extremely thin, partially reflecting layers with precisely computed thicknesses, similar to MC coating. The B+W Filter 486 does not block by means of absorption, but by interference of the unwanted UV- and IR radiation that is repeatedly reflected between these layers, affecting the wavelengths on both sides of the visible spectrum with a steep cut-off. It is used mainly on digital- and video cameras with CCD sensors without an integrated IR protection filter, because the IR sensitivity of the CCD sensor would otherwise cause color changes and unsharpness. That unsharpness results from the chromatic aberration of the lenses that are only corrected for visible light. In the visible range, the transmission curve is very high and straight. This filter is completely clear and it requires no increase in exposure. Its filter factor is 1.

**B+W Infrared-Blocking Filter 489**

This IR-blocking filter must not be confused with heat-resisting protection filters for projectors or spotlights. Instead, it is intended for use as protection for IR-sensitive CCD sensors or in the light path of illumination devices with low thermal characteristics. It suppresses infrared radiation ≥780 nm. Because it gradually begins to absorb infrared radiation at 600 nm, long-wave red light is slightly weakened, so that this filter has a subtle green tint. But in CCD applications, this can be readily corrected electronically. Its filter factor is approximately 1.2.

**B+W Special Filters with Schott Glass types BG 18, BG 12, BG 38, BG 39 and VG 9 are available on special order.**

Upon request they are also available with other types of Schott Glass.
INFRARED

B+W Tip: Digital IR Photographs

CCD sensors in digital cameras are very sensitive to infrared radiation, which can generate false colors and blur. This is why a filter layer on the sensor customarily suppresses it. However, it is designed only to suppress enough of the infrared that would grossly affect color. Sometimes additional filtration is needed in critical applications. With the use of a B+W Infrared Filter 092 or 093, the residual infrared sensitivity can be used to create interesting infrared photographs. These will look similar to photographs taken on conventional black-and-white Infrared film. Because of the underexposure that would occur when using a manual exposure camera, an increase in exposure by at least one aperture stop is recommended, plus automatic tonal value correction in Photoshop®.

INFRARED
Infrared photographs are attractive in many ways: Because of the nearly white reproduction of the chlorophyll green of vegetation, infrared black-and-white photographs render landscapes as if they were self illuminating, or immersed in an extraterrestrial light (the moonlight effect). Infrared color photographs have a fairy-tale effect because colors are reversed. The film renders highly infrared-reflecting plants in orange to purple-red tones, while filters suppress the blue and green components that are also present. In any case, the pictorial results are difficult to predict, therefore they are always good for experimentation and surprises.

Because there are no exposure meters that are sensitive exclusively to the sensitivity range of these infrared films, it is difficult to calculate exact exposures and conversions by means of filter factors. This is due to the fact that two subjects that are equally bright in normal (visible) light might reflect infrared radiation at significantly different rates. In other words, they can have very different “brightnesses” as far as the infrared film is concerned. Therefore it is always advisable to make a series of three to five different exposures. Don’t be stingy with film, because once it is out of the refrigerator, it is only good for a few months anyway, so use it up quickly!

**B+W Infrared Filter 092 (≈ 89 B) [RG 695]**
The nearly opaque B+W Infrared Filter 092, which looks dark purplish red when held in front of a light source, blocks visible light up to 650 nm, and passes only 50% of the radiation just below 700 nm (thus the dark red color). From 730 nm to 2000 nm, transmission is greater than 90%. This makes photographs of pure red and infrared images possible with the best utilization of the relatively low sensitivity of infrared films. As the sensitization of infrared black-and-white films barely extends beyond 1000 nm, the red portion that is transmitted still makes a relevant contribution to the exposure. That is why this filter is the preferred filter for pictorial photography on IR black-and-white film. Its filter factor is 20 to 40.

**B+W Infrared Filter 093 (≈ 87 C) [RG 830]**
This B+W Infrared Filter blocks the entire visible spectrum, so to our eyes it looks completely opaque. Unlike the infrared filter described above, it makes pure infrared photographs possible without the visible red component. Its transmission only begins to exceed 1% at 800 nm, rising to 88% at 900 nm, and remains that high far beyond the upper limit of sensitization covered by infrared films. This filter is used less frequently in pictorial photography because of the dramatic loss of effective ISO. But in the scientific field, materials research and forensics, the limitation to a strictly infrared range is often important. The filter factor is very dependent on the illumination and on the characteristics of the film.

**B+W Infrared Filter 099 (≈ 16) [OG 550]**
The orange-colored B+W Infrared Filter 099 is the ideal filter for photography with infrared color film, which is also referred to as “False Color Film” because of its charming abstract color reproduction. It blocks large portions of short-wave radiation, up to 520 nm (blue, blue-green) and reaches its full transmission near 600 nm, which it retains far beyond the sensitization range of these films. This avoids the blue cast that is caused by the heightened sensitivity in this spectral range, and it leads to a better differentiation of colors. The charm of these infrared color photographs is partly due to the orange to red rendition of green vegetation, which is due in turn to the high infrared reflectivity of the chlorophyll in plants. The filter factor is highly dependent on the film and on the degree of infrared reflection of the subject.

B+W Infrared Filters are also available on special order with Schott glass types OG 590, RG 610, RG 630, RG 645, RG 665, RG 715, RG 780 or RG 9.