



Film Tips
Photographic

Chromogenic B&W Films

Great black-and-white images
via standard color processing

Text and photos by Jack and Sue Drafa

When you look back at photographic history, black-and-white was long the predominant recording medium. There were some attempts at color in the mid-1800s, but black-and-white photography was generally considered king. In the mid-1900s color came into its own, and interest in black-and-white photography slowly diminished. Its use eventually migrated from commercial photography to fine-art applications.

Interest in black-and white-photography was sparked again with the introduction of a black-and-white film that

could be processed in color-negative film chemistry. This film, called chromogenic black-and-white film, has added dye layers in its emulsion. During its processing in standard C-41 color-print film chemistry, the silver is processed and coupled to the dyes. It is finalized by the removal of all the

Top: In this macro shot of a fall leaf, Kodak Black & White 400 film converted the yellow color to light shades of gray and retained fine detail. **Above left:** The wide exposure latitude of Portra 400BW held detail throughout this high-contrast subject.



silver in the film so that all that remains are the dye clouds that form the black-and-white negative image. This negative can then be printed on either black-and-white or color paper.

Our first contact with chromogenic film was in 1965 when we came across an ad for a new black-and-white film with an 18-stop exposure latitude that could be processed in C-22 chemistry. Invented by Charles Wycoff and marketed by E, G & G Company (Edgerton, Germeshausen & Grier), this film was actually called Extended Range film and it was designed for photographing nuclear testing and space research. The Edgerton in the company name was none other than Dr. Harold Edgerton, who invented the electronic flash. Small world, huh? The ISO speed (ASA speed, in those days) of this rare film ranged from .004 to 400 in three layers. The original Extended Range film was very hard to print and eventually disappeared into photographic history.

Left: Ilford XP2 reproduced this monochromatic building abstract very well. **Below left:** Kodak T400 CN held detail throughout this full-range subject. **Below:** The high (ISO 400) speed of chromogenic film enabled us to use a shutter speed of $\frac{1}{125}$ to keep the image sharp in this moon shot with a tripod-mounted 500mm mirror lens.

Then in 1980 Ilford Imaging introduced a consumer variation called XP1. This was an ISO 400 chromogenic film that was easy to use and gave incredible results. Eventually this emulsion evolved to XP2, and today's XP2 Super. Agfa introduced Vario-XL later the same year, but discontinued it a year later. Many of the staunch traditional film users thought the chromogenic concept to be a passing fad, but this new type of film caught on before long. Kodak later picked up on the idea and introduced chromogenic films for both APS and 35mm cameras. Even Konica came on board with their Monochrome VX400 film.

Currently, there are five chromogenic black-and-white films available in 35mm format: Ilford XP2 Super 400, Kodak Black & White 400, Kodak Professional Portra 400BW, Kodak Professional T400 CN, and Konica Monochrome VX400. Portra 400BW was designed specifically to be printed on color paper; the others produce best results when printed on black-and-white papers, but can



also be printed on color papers. XP2 and the two Kodak pro films are also available in larger formats; Black & White 400 is also available in APS format.

Chromogenic Advantages

There are many reasons this type of black-and-white film has become so popular. The first is that you don't have to setup a darkroom for film processing or printing black-and-white images. This may not sound like a big deal, but there are photographers who would like to get into black-and-white, but don't have space allocation or the desire to venture into the wet part of the black-and-white process. There will always be those who will extol the excitement of seeing your first print coming up in the developing tray, but you can still traditionally print these negatives in the darkroom if you desire. The key is that you now have options and alternatives.

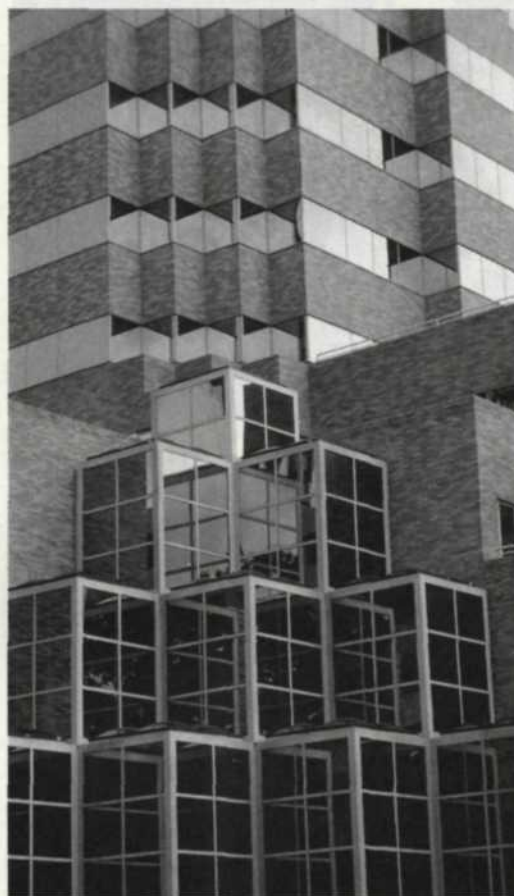


Best of all, you can get your chromogenic film processed right along with your color negative film. In fact, you can even take it to your local one-hour lab and see your results in no time at all. Most one-hour labs will print the black-and-white negatives on color paper using a neutral color balance printing channel. Although the processed negatives will have a slight brown or sepia color, they will not appear as that color in the final print, unless you want it that way.

If you desire your black-and-white chromogenic images printed on traditional black-and-white paper, you may have to go to a custom lab. In most cases, they can print your negatives on traditional black-and-white paper and provide great results. They may even use special papers, like Portra from Kodak, which are especially designed for printing chromogenic negatives.

There are also many additional benefits to this film—for example, the film speed. In the rest of the film world you have all different levels of ISO speeds that exist inside one film family. Black-and-white chromogenic films today are rated at ISO 400, and are virtually grainless because of the dye cloud structure in the final processed image. Since there is no need for a low speed to control the grain size, ISO 400 is an ideal film speed for all types of lighting situations.

The exposure latitude is similar to that of color negative



Far left: The extremely fine grain of Kodak Black & White 400 ensured that the tonal gradations remained smooth.

Left: ISO 400 speed really helps with P&S cameras' slow zoom lenses.

Above: Speed and latitude of chromogenic films mean lots of detail in your photos.

film, which averages -3 to $+4$ stops. Many of these emulsions can be pushed as high as EI 3200 with

special push C-41 processing done in custom labs. You can even rate the film as low as EI 50 because of the multilayer construction found in chromogenic films and achieve an even tighter grain pattern than found at ISO 400.

Another advantage of the chromogenic negatives is their compatibility with film scanners such as our Nikon Super Coolscan 4000 ED. Because of the nature of traditional black-and-white films, you cannot take advantage of the Digital ICE (Image Corrective Enhancement) technology found in most of the new scanners. It must be turned off, otherwise you may find some posterization to your images. Since you must turn this unique function off, you will have to remove dust and scratches manually in your editing program.

Chromogenic films, on the other hand, are excellent candidates for the film scanner because they can take advantage of all the Digital ICE technologies. Your scanned images will have no scratches or dust to edit, and in most cases, you can set the scanner to negative film in the mono/graytone setting for



Above: XP2's 400 film speed let us hand-hold this overcast-day shot with a 300mm lens, and get a very sharp image.

Right: The fine grain and wide latitude of T400 CN allowed us to make an extreme enlargement of this macro detail shot.

quick scanning. As the film has no apparent grain, there really is no need to use the GEM (Grain Equalization Management) technology, but we do recommend using the unsharp mask to counteract any sharpness loss due to the scanning process.

Another advantage of chromogenic films is that they print (and scan) equally well with all types of enlargers and scanners. The silver particles in conventional black-and-white negatives scatter some of the light from condenser enlargers, thus exaggerating contrast (the same problem occurs when conventional black-and-white negatives are scanned with many desktop film scanners). Since chromogenic black-and-white negatives contain no particulate silver, they don't present this problem.

We started our photographic career more than 30 years ago using black-and-white film, and have witnessed some remarkable emulsion improvements over time. We have experienced developing black-and-white film, watched our first print magically appear in the tray, enjoyed the effervescent smell of fixer and the entire wet lab concept. Black-and-white photography is alive and well, we now just have new options and directions available. Chromogenic films have opened a door to those photographers who want to experience the black-and-white world without needing a darkroom. Let's face it, most photographers just want to get out and take pictures. Chromogenic films make it easier to experience the world of gray tone variations. ■

