

More Information about Ilfochrome Classic than anywhere else on the Web

What is Ilfochrome Classic (and why isn't it called Cibachrome anymore?)

Cibachrome (we'll get to the name change in a moment) was developed by the Ciba-Geigy Corporation of Switzerland in the 1960s. It is a colour print material for printing directly from colour transparency film, without the need of an inter-negative.

Other methods of printing from slides, such as the "Type R" processes offered by Kodak, Fuji and others, as well as negative printing processes, are often referred to as *chromogenic* processes. In these processes, colour dyes are in the chemistry and interact with the developer to form the colour image on the paper. In Ilfochrome Classic, the dyes are built into the paper, and are bleached out selectively in processing. The dyes used are called AZO dyes and they are known for their exceptional stability and colour purity. Ilfochrome Classic prints are known for both their archival qualities and their rich, saturated colours. When you compare them to other prints, they are also noticeably sharper and this is directly due to the dyes being in the paper, not in the chemistry. By incorporating the AZO dyes in the emulsion, they act as an anti-light scattering layer, keeping the projected image from spreading out as it penetrates and exposes the emulsion.

Since most of the dye stays in the paper, little is in the waste chemistry, unlike chromogenic processes, which waste greater quantities of toxic dyes into the environment. The developer used to process Ilfochrome is similar to that used in black and white processes. The bleach step, while containing sulphuric acid, is neutralized with sodium bicarbonate before disposal, and contains no toxic substances after treatment. The fixer is conventional and processed after use for silver removal.

There are two surfaces of Ilfochrome Classic print material. The most common is the glossy, which has a polyester backing-it's all plastic, no paper. It's available in three contrast grades on sizes 20x24 and smaller, and in two grades-high and low contrast-on larger sizes. When archival tests are done on Ilfochrome Classic, they are done on the glossy material.

The other is more of a matte surface, called Pearl. It's a resin-coated paper material and while it has the same emulsion and characteristics of its glossy sibling, the Pearl is not considered archival. This does not refer to its fade-resistance, since the emulsions are the same, but to its RC paper base. There is more of a possibility that the emulsion can separate from the paper backing, as it can on any RC paper. In actual practice, I've never seen this happen, but serious galleries and collectors willing to pay big bucks for your masterpiece will usually specify the glossy surface.

There is a Glossy RC paper, which we don't use, since is not as archival as the polyester, and, in my probably jaded opinion, does not look as good.

And now, the answer to everyone's biggest question, "Why did they change the name from Cibachrome to Ilfochrome Classic?" Ilford purchased the Cibachrome manufacturing facility in Switzerland. They wanted to continue using the Cibachrome name; Ciba-Geigy said OK, but only for existing products, and only for ten years, since they didn't want their name on future products they had nothing to do with. Thus, Cibachrome=Ilfochrome Classic. Unfortunately, Ilford has made virtually no effort to inform the public as to why the name changed and even confused the issue at first by advertising "Ilfochrome Classic, the next generation of Cibachrome" as if it was something new. It's not. It's just a name change. They do, however, tweak the printing characteristics of the emulsion from time to time and over the years have expanded the Ilfochrome Classic polyester (glossy) material to three contrast grades.

If you want to be even more confused, consider this: there is another material called Ilfochrome Rapid, also for printing from slides. It's a faster processing material, but has different printing characteristics. It's often referred to simply as "Ilfochrome" and that gets confused with the real Cibachrome successor, Ilfochrome Classic. We only use the Classic. If you are in doubt about your lab, ask them. If they hedge, ask what chemistry they use in the processor. If it's P4, they are using the Rapid material. P3, P3X, P30 and P30P are all that can be used with the Classic material.

Ilfochrome Classic is also available in both a transparent and a translucent base, for use as display transparencies, although we do not offer these materials.

Exposing film for printing on Ilfochrome Classic.

Before we can make a print, we need a piece of film to make a print from. So, starting from the beginning, let's make it clear that Ilfochrome Classic is a positive printing process—we print from slides or transparencies, not colour negatives. Of course, we could print a colour negative, but it would look just like the negative, with reversed colours and an orange cast.

There is no one film that is better for printing than any other. The particular characteristics of each film will affect the way the print looks. If you like rich colours and fine detail, something like Kodachrome or Fuji Velvia might be your choice. It's up to you. Slow speed films like Kodachrome and Velvia tend to be contrastier than the faster films with exposure indices of 400 or greater. Since printing directly from slides onto any colour paper can increase contrast, this is something to be aware of. Becoming educated about the film you shoot and how it prints is not difficult. I'll discuss here a few things to keep in mind so you can better control how your film will print.

A common question I hear is, "How should I expose my slides for printing?" My rule of thumb is this—if the scene lighting is contrasty, such as middle of the day bright sunlight, underexposure will produce dark shadow areas with little detail and can be hard to print, if shadow detail is important. Slight underexposure is OK for viewing projected slides, but is bad for printing. A normal exposure to perhaps one third of an f/stop overexposure will help in contrasty lighting. Film seems to handle slight overexposure better than printing can handle underexposure. The key word here is slight. If you bracket three exposures one third to one half of a stop apart and send us all three, we'll pick the best one.

Sometimes customers will bring in a series of bracketed exposures and ask which one to print from. Often, the answer will be, "They're all printable and the differences are as you see them here on the light table." There is no one perfect exposure for any given scene, because aesthetic and emotional impact also comes into play. Is a darker image with saturated colours what you're aiming for, or do you want something more open and airy? What we aim for in bracketing is to find a good exposure for printing to produce an image where the important highlights are not lost and the important darker details have not sunk into the murk.

When shooting in soft lighting, such as an overcast day, where contrast is less of a problem, slight underexposure is OK. We can print a little lighter to come up with brighter colours and good saturation, but the low contrast lighting means we probably don't have bright highlights to worry about burning out as we lighten the print.

Every brand of film has its own colour palette. Some films do great on skin tones but are weak in greens and blues. These biases will show up in prints, too. For a long time, Fuji films such as Velvia offered a level of saturation Kodak's films could not match. In response, Kodak began offering films such as Ektachrome 100VS. There is no one "best" film. Try a few and see if you have a favourite. They all print well on Ilfochrome Classic. When we print a slide, we can alter colour balance, but only overall. There is no way to "boost" the greens without introducing a greener cast to the rest of the picture, too. Conversely, if your slide

has an overall colour cast, we can try to remove it. Since this is a subjective matter, there is no guarantee it will be perfect, but it'll probably be a big improvement.

An overcast day will often result in slides with a bluish cast. Fluorescent lighting can give greenish colour and incandescent lighting can make outdoor balanced film look too warm. If you ask, we will try to adjust these colour shifts. However, when adjusting colour like this, the highlight areas will be affected at a quicker rate than will the darker colours. When adding magenta to counteract the green cast of fluorescent lights, by the time we have added enough to correct the greater part of the image, the lights themselves, if they are visible in the picture, may start to take on a pinkish cast. You may also have a slide with multiple colour casts caused by mixed lighting. Outdoor shots can have a cool rendition in the shadowed parts, but look normal in those parts lit by direct sunlight. We cannot change the colour of only part of the picture. That's a technique for digital imaging!

Film sharpness and grain are other issues that photographers have questions about. "Is this slide sharp enough to print? How big can I print this picture?" Again, this is ultimately a subjective question with no generic answers. If the subject matter is in focus, that's usually what's important. As for size, the important issue is what you intend to do with the final print. The controlling issue is the angle the viewed print subtends with the viewer's eye, which is a fancy way of saying an 8x10 at arm's length will look the same as a larger print viewed from further away. Kodak has made prints over sixty feet long from 35mm film. But they hang them in Grand Central Station!

Choosing slides for printing

The best way to learn how your slides will print, by us or any other lab, is to try a few and see. What makes a good looking print is a combination of factors influenced by the exposed piece of film, the printer's tastes and skills, your preferences and the viewing environment of the final print. How do you look at the slides you're considering for printing? If you project them, you'll always see more detail and richer, more vibrant colours than you can usually get in any kind of print. This is due to elementary physics. A projected slide has light passing through its emulsion only once before bouncing off a highly reflective surface (the screen) and back to you eyes. Thus, the light is absorbed by that emulsion only once. A print, on the other hand, is also a piece of emulsion against a white backing, but the viewing light must travel through the print emulsion, be reflected off the paper backing (polyester, in the case of Ilfochrome Classic glossy) then back through the emulsion a second time before reaching your eyes. It's absorbed twice by the emulsion (a degrading experience!) and the resulting image is by the very nature of the medium, dimmer than a projection of the same slide. As a practical matter, this primarily affects the darker detail. Shadows look darker and there is less delineation of shadow detail.

An optimum print will have rich colours throughout. In the shadows, there should be a pure black, if it's there in the slide, to set the bottom end of the tonal range. If the shadows are over lightened to bring up weak detail, the maximum blacks will degrade to less than the pure black of the print borders-they will be fogged. There may be more detail visible, but the overall look of the image may not be improved. The same thing happens in black and white printing, but to a lesser degree, since black and white materials have a greater dynamic range, a greater contrast range, than colour material, both film and print.

A better way to judge how a slide will print is to simply lay it on a good light table and view it normally, without a loupe. Through a loupe, you will see more detail in shadows than you can usually get in a print, for the same reasons the projected slide looks better.

What constitutes a "good" [light table](#)? The most important elements are the light bulbs themselves. Never use incandescent bulbs, because the slides will look too warm. There are special fluorescent tubes that are a standard in the photographic and graphic arts world. If you make your own light table, be sure and use a box lined with a reflective white paint or siding that does not itself have a perceivable colour cast. White can come in many

"colours!" In any case, what you buy or build will probably still vary somewhat, particularly in intensity, from what your lab may use, but at least you should be pretty close.

Now that you've got those slides spread across that light table, let's put the loupe on them. Check for focus. I'm amazed at the number of times professional photographers have brought me slides they chose that had focus problems. You can't tell focus without [a loupe](#). Even projected, focus may not be as obvious as when judged through a good 8x loupe. You can spend £5-150 on a loupe. There are several in the £30-45 range that seem quite good. After you have determined that the focus is good, inspect the slide closely for dirt, spots, scratches, etc. You'll probably find something, especially if your picture has large amounts of sky or similar smooth-toned areas. While we will clean your slides before printing, it's best to dust them off before sending them.

We use three methods of cleaning film. The first is [compressed air](#). This can be from a properly filtered air compressor if you do a lot of cleaning or a can of compressed air.

Air will remove most loose dust, hair or fabric threads that simply lie on the surface. If air didn't remove a spot, the next tool is a soft camel hair brush. [Anti-static brushes](#) also administer an antistatic charge to the film with use and are a good choice for darkroom use. If these methods fail to clean the slide, a liquid film cleaner is the next step. The best one we have found is [PEC-12](#), when used with the accompanying PEC-PADS, a nonabrasive synthetic cleaning wipe. Spray a little dab on one corner of the pad and gently rub the offending spot, then use a dry part of the pad to wipe off any residue. The manufacturers of PEC-12 love to visit trade shows demonstrating their product. They invite people to apply the cleaner to a pad and rub a piece of film. Close inspection shows that no scratches result from rubbing vigorously with their product. However, keep in mind that if there is a piece of dirt stuck to your film, loosening it with a vigorous rub may cause the now free bit of grit to scratch the film as you rub it across the surface.

Film is fragile, so handle it carefully at all times. Especially when cleaning. Sometimes it will happen that if a piece of dirt is tough to get off, you may end up trading a speck for a scratch. Keep film clean to begin with and this is less likely to happen. When your film is freshly back from processing, it has not yet completely hardened. It actually takes a week or so for hardening of the emulsion to completely finish. When the film is newly processed, it should be fairly clean. Protect it right from the beginning.

Roll, sheet and unmounted 35mm film strips are usually placed in protective sleeves, where they should stay unless being inspected for dust or printed. Mounted slides can be protected by insertion in individual clear Mylar sleeves, even if they will be subsequently stored in pages for viewing. The slide pockets in pages have been known to scratch slides when moving them in and out, and the open tops of the pockets can allow entry to dust. If you place a clear sleeve on the slide first, orient it so a closed side of the sleeve is at the top of the slide when you then put it in the page.

The last thing you need to do is decide on what cropping, if any, you wish for your print, and indicate it on the slide mount or film sleeve. This is often a confusing issue for beginners and professionals alike. Here's why.

The image format, that is, the ratio of height to length, varies from film to film. For 35mm film, the ratio is 1:1.5. The image on the film is 24mm by 36 mm. For roll film, there are a number of formats, from square to 6cmx9cm as well as the even narrower panoramic formats. Sheet films, such as 4x5, are not exactly 4" by 5". To make matters worse, not every camera produces precisely the same frame size as another for that film format. These differences, while minor and undetectable when just viewing the film, become significant when enlarging an image 5-20 times for a print.

Printing paper comes in sizes that do not match the film formats precisely, either. On a sheet of 8x10 paper, a 35mm slide, when printed with no cropping of the frame, will give a maximum image size of about 6 3/4" x 10". There will now be roughly 5/8" borders on two

sides. We refer to this as a full frame print. If we enlarge the image to fill the paper with no borders, making the 6 3/4" dimension a full 8", then the longer side will now fall off the ends of the paper and be cropped. This is called standard cropping.

Some minor amount of cropping by the printing easel blades will result to assure you of a sharp edged border, but this generally will not affect the image significantly. On sheet film, we also crop out the processing clip marks. We must crop a sliver of the edges of all images to avoid flare from bright light projected around the film edges or through sprocket holes.

Since we temporarily remove slides from their mounts to print them between glass for edge to edge sharpness, there may be more of the image in a final print than you expected. We try to be intelligent about whether or not this added image would be an unexpected detriment, such as a solitary light spot in an otherwise dark image, and we'll crop it out if appropriate. You can, of course, instruct us to print everything under the mount.

Each film format can have a full frame size or a standard cropping size, on each different paper size! Of course, we can also custom crop an image. The result may be an image that does not exactly match a paper size, and thus will have borders on two sides. You might prefer, for example that a slide of a long train be printed in a narrow image that might be 3" x 10".

Another option is to have us print an image to an exact size on a given sheet of paper, resulting in borders. This can be handy if you are printing a lot of images and want to be able to cut all the matboards the same size. Again, exact size printing may result in some cropping of the image if your needed size does not exactly match the length to width ratio of your film format. If you choose an exact size and indicate cropping, we will approximate the cropping to give you the exact image dimensions. Our exact size tolerances are plus or minus 1/16".

On full frame and standard cropped prints, you can also specify a border for any sides that would normally print to the paper edge. Standard borders are 1/4". Borders are recommended if you mat your prints. They also help keep fingerprints off the image itself.

Printing on ILFOCHROME CLASSIC

When we receive slides for printing, the first thing we do is place them in clean protective sleeves, if they are not already. Then we judge the image for colour and contrast and decide what grade of paper to test it on first. We make a test exposure of each image, a full-frame contact of it on the appropriate paper. When this is processed, we can view it and judge whether another test is needed or if we can make the print.

Unlike some other colour printing materials, we have three contrast grades of paper available with Ilfochrome Classic (on the glossy surface only.) We use the medium grade about 85% of the time. When comparing the three grades, you'll find that contrast and colour saturation are related.

The lower contrast paper (designated by Ilford as CF.1K, referred to here as CF) has the lowest colour saturation. The medium grade (CLM.1K, or CLM) is higher in both regards and the highest grade (CPS.1K, or CPS) is the contrastiest and has the richest colours. However, there is a greater difference in both contrast and saturation between the CF and CLM papers than there is between CLM and CPS. We'll choose the grade based on the contrast of the slide or your expressed desires for the image. Keep in mind that the characteristics of the material a lab uses will also be affected by their print processor. Paper can respond differently in different machines. If you have a set of great prints from one lab and you know they were done on CF paper, don't assume you'll get the same results on that paper from a different lab.

Seldom can we just make a single exposure of a slide and achieve a good print, no matter what grade we print it on. There are a couple of controls we have to help pull out as good a print as we can from a slide. First, we can dodge and burn the image to aid the basic exposure. Dodging means holding back parts of the image during print exposure by blocking the projection with hands or appropriate shapes at the end of thin wire dodging tools. Dodging will darken the affected parts of the picture. Burning in part of the picture lightens it by giving additional exposure, usually to darker parts of the slide. If too many small areas need dodging or burning, this becomes unwieldy. Two hands holding two dodging tools can only cover so much territory during the time the exposure takes! Also the nature of this kind of manipulation causes the dodging and burning tools to have soft edged projections, thus making it hard control with precision.

Beyond the traditional means of controlling contrast by paper grade and dodging and burning, we also make use of an advanced technique known as masking. We discuss this process in more detail on a separate page and invite you to read it if interested.

Retouching

When printing from positives, spots and dust on the original will show up as black on the final print, unlike with negative film, where dust reproduces as white and is more easily retouched. With black spots, retouching can only be done with opaque dyes, or more properly, paints. Unfortunately, these won't dry to the same reflectivity as the print and are not generally satisfactory. It is possible to bleach out the offending spot and build colour back up with dyes. If you are interested in attempting this, you should refer to the Ilford technical manual on retouching. Be warned that this will require using some pretty nasty chemicals, including sulphuric acid, and is potentially harmful to the print and you!

If the spots on your prints are light, retouching can be done using official Ilford retouching dyes, which have the same characteristics as the dyes used in the emulsion of the print. These dyes come in dry form and are water soluble. But to use them properly, you must pre-wet the print in water and apply the dyes to the wet print. It will take some practice to do this well. Again, refer to Ilford's retouching manual for more detailed information. We have successfully used Marshall Liquid Dyes for minor retouching of light spots. They dry to very nearly the same gloss as the print and are easy to apply. They are probably not as long lasting as the Ilford dyes, but we haven't seen any other problems with them. To use them, mix colours with water to get a shade lighter than what you want. Apply lightly to the print, then dab up excess liquid with a paper towel. Repeat this procedure to build up the dye concentration slowly. If you are unhappy with the results, you can wash the print in water (70-90 degrees F), then squeegee off the excess and dry with a hair dryer or hang up by a corner and dry over several hours. Most of the dye should wash out, however, heavy concentrations may not wash off completely.

If your goal is creative alteration of a print for artistic purposes, then strict adherence to the look of the print may not be of primary purpose and you should just experiment with the dyes and paints you are familiar with. In particular, Ilford has heard of retouchers reporting success with Windsor And Newton Designer Gouache and materials made by Schminke and Shiva.

Mounting and displaying the final print

Displaying the print is the reward for all the work that went into taking the picture and getting it printed. How you display a photograph is as important as the rest of the process. Most people choose to put the print behind a mat window, usually within a frame, for hanging on a wall. The glossy Ilfochrome Classic print has a mirror-like finish to it. This gives the prints a richness and depth no other printing process can match, but it also presents some handling problems. Like a piece of glass, the surface of the print is susceptible to fingerprints. Always handle the print by the borders or while wearing cotton

gloves. Fingerprints often eat their way into the emulsion of a photograph, or film, for that matter, and cannot be easily removed. If you get a light print on the picture, a soft cotton cloth may remove it. Sometimes denatured alcohol helps, too. **PEC-12** film cleaner is also useful.

The glossy finish is very reflective. When the print is unmounted, it will lie or hang flat. If you want to put it behind a mat window, avoid mounting the print on another piece of matboard first, for two reasons. First, glossy Ilfochrome is an all-polyester material. It's plastic. The high temperatures of a mounting press can melt the print if it's too hot. There are low temperature mounting materials available, if you must use a mounting press. Ask us for a scrap if you want to practice first. A better way to mount the print is to use a spray adhesive or a transfer adhesive sheet. When the adhesive or transfer sheet is applied, cover the surface of the print with a clean piece of paper and roll it out with a hard rubber roller.

Because Ilfochrome prints have that mirror-like finish, dry mounting them or using any adhesive to mount them will cause them to pick up the surface imperfections of the mount board unless it is perfectly flat, like Plexiglas or sheet metal such as aluminium. This usually results over time in an "orange peel" or ripple look to the glossy surface. A potential problem in the long term with plastic or acrylic sheets is a bubbling or "snowflake" patterning caused by moisture in the acrylic. Contact Ilford for information in greater detail on treating acrylic before mounting. Wood products such as Masonite are usually unacceptable, due to their porosity and the oil content of the wood, which may lessen the effectiveness of the adhesive.

For matted prints, another option is to hold them in place with a thin piece of mounting tape across the top of the picture only. Changes in ambient temperature can cause different materials, like print and matboard, to expand or contract at slightly different rates. If a print is mounted directly to a matboard, or even taped across the top, this difference in rate of expansion can cause a slight bowing of the print, especially in larger print sizes. Better yet, use a sufficient border (1/4" on 8x10s, greater on larger prints) and place the corners of the print in photo corners that are taped to either the backing board or the backside of the mat window, so that it floats freely, unattached to the board directly and held in place by the corners and the window mat.

You should never place a piece of glass in direct contact with the surface of any photograph because, over time, changes in humidity may cause the glass to stick to the surface of the print.

If you choose to mount glossy prints behind a mat window using photo corners or a piece of tape across the top of the picture, use glass, not acrylic or Plexiglas, in the frame. Plastics such as these are subject to static electricity charges that can attract the polyester base of the glossy print like a magnet and cause it to stick to the Plexiglas surface, resulting in Newton rings and the potential for humidity to stick the print to the plastic.

The light you view a print in will have a great effect of the way it looks. Because we don't know how you will light your print, we have to establish at least the rudiments of a viewing standard. Even still, it's an objective standard. Ilfochrome classic prints look best when viewed in fairly bright light. Dim, indirect light, such as the subdued light of a living room, may make any photographic print look dark and muddy. If you know that the print is destined for a fairly dark room, mention that so we can try to lighten the print more than we normally would. Be forewarned, however, that this kind of lighting is not optimal, and some loss of highlight detail and colour saturation will occur.

A normal room, with some skylight and indoor illumination, is the average and we generally print for these conditions. Best viewing will be in a bright room, such as in many galleries, perhaps with individual low wattage spots on each print. Ilfochrome Classic prints will just seem to glow under good illumination. We can print for the subtleties of the highlights, not letting them wash out, and the brighter illumination will bring out the shadow details.

The colour of the lighting can affect how the print looks, too. Usually this is more critical on images containing light pastel shades or monochromatic, gray subject matter. Again there is no way to adjust for this accurately in printing, so you should avoid strongly coloured lighting if accuracy is important.

Avoid direct sunlight on a print for extended periods of time. Although more impervious to this kind of fading than other colour prints, even Ilfochrome can be faded in direct sunlight.

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