

The Differences Between Professional Films and General Picture-Taking Films

Kodak manufactures color negative films and color reversal films for professional applications and general use. It is important to understand the different characteristics of films with the "professional" designation and those without it. These characteristics are significant to professional photographers, photo hobbyists, and everyday picture-takers.

All color films are composed of several layers of complex emulsions made of different chemical compounds. Since these compounds tend to change slowly with time, all color films will age, beginning on the day they are manufactured. As films age, their color balance and other characteristics may change slightly. To provide films that meet the needs of different types of photographers, Kodak allows for this aging process during manufacture.

Kodak builds a small manufacturing bias into general picture-taking films to compensate for changes that usually occur during storage and use. This bias allows for changes produced by room-temperature storage and for typical delays between purchase and processing. For example, if a given film shifts toward yellow-green as it ages, it will be manufactured with the color balance shifted toward blue-magenta to compensate. The color balance of this film would shift away from blue- magenta during shipping and storage to provide a good color balance over the normal period of use.

The professional photographer has more demanding requirements than the general picture-taker has. The professional photographer needs to know that a particular film is near its optimum color balance at the moment it is put into the camera. He or she must also be able to measure, through testing, any slight color or speed bias in a particular film or emulsion, and then adjust filtration and exposure to compensate. Kodak professional films are close to optimum color balance when they are manufactured and packaged. The film will stay near this balance when it is stored at 55 (13) or lower (under refrigeration)--until the "Process Before" expiration date printed on the film carton.

Professional photographers tend to buy large quantities of film at one time. To obtain the best quality and to save time and money, professional photographers need to know that the color balance and speed of all of this film has been accurately established, that the film is consistent from roll to roll, and that it will not change significantly during the time the stock is being used.

Professional color films are not kept in a camera for long periods. Generally, a professional photographer will have the film processed within hours or days after exposure so that the color balance doesn't shift significantly. A photographer will often have film processed and checked while holding expensive models or products and

props on a set. Professionals need to be sure that the film reproduces colors in a way that meets their clients' needs.

Casual picture-takers, on the other hand, usually buy one or two rolls of film at a time. One roll of film may remain in the camera for several weeks or months before being processed. The nominal film speeds of films intended for general picture-taking are provided on the film carton and in the instructions. Because of the exposure latitude of Kodak films and typical conditions of use, exposing the film at the nominal film speed will produce good results for general picture-taking situations.

Kodak professional color films can usually be identified by the word professional in the name--for example, KODAK EKTACHROME 100 Professional Film. The names of other professional films for special applications usually contain a word that indicates the intended use of the films--for example, KODAK EKTACHROME Duplicating Film / 6121.

Only professional films are supplied in sheets, multiple-roll pro-packs, and long rolls. General picture-taking films, commonly referred to as "amateur" films, are sold as single rolls, and two or three rolls to a package, depending on the film.

The slightly higher cost of professional films is due to the increased cost of manufacturing them. This cost includes the testing involved in providing products with differing aim points, additional formats, and specific film-speed ratings (within 1/3 stop) for batches of some films. For example, specific film-speed data, as well as reciprocity information for sheet sizes of KODAK EKTACHROME Professional Films, assist professional photographers doing critical work. Proper use of the supplementary data minimizes the amount of testing and film usage that would otherwise be required to establish the exposure conditions for a high-quality professional photograph to meet the critical needs of commercial clients.

Use all films before the expiration date printed on the film carton. You will also obtain the best quality when the film is processed promptly after exposure.

Storage Conditions for Kodak Color Films

Current KODAK Films (amateur and professional) are more stable than past generations of films. However, all films are perishable products with a typical pre-process life expectancy of 1 to 3 years.

General picture-taking films are designed for room-temperature storage; professional films require refrigerated (55 degrees F [13 degrees C] or lower) storage.

Professional films are not significantly more perishable, but they require refrigeration because they are manufactured so that they are near their optimum color balance at the time of shipment. Refrigeration reduces the effects of normal aging and provides minimum changes throughout the life of professional films. Refrigerated storage will insure minimum variability, but this does not preclude normal use on extended

assignments under reasonable ambient conditions. You should protect all films from high temperatures and high relative humidity; these conditions accelerate the changes associated with film aging.

In general, you can expect minimal changes in amateur color negative films that are stored at 78 degrees F (25 degrees C) or lower during the first few months. These changes become measurable after 3 to 9 months of storage. However, since this is the normal time during which the majority of film is used, these changes are anticipated and allowed for during manufacture. Changes become more pronounced as the film approaches its "Process Before" date (printed on the film carton), but these changes can be compensated for during printing.

The degree of change is not significantly different for professional color negative films. But because these films are near their optimum color balance when they are shipped, combining the same rate of change may result in undesirable effects in prints from film approaching its expiration date if the film is stored at room temperature. These changes also increase variability of results, which is unacceptable in applications that require consistency.

You can expect small, gradual changes at normal ambient conditions. These changes alone do not cause a significant loss of quality in amateur or professional films. However, in professional applications, this reduces the tolerance for other changes in the system that might produce quality losses when combined with film changes.

Little or no change is observed in amateur color reversal films in the first few months of room-temperature storage. You can observe changes after 3 to 9 months, but these changes are anticipated and allowed for during manufacture. Again, the changes become more apparent as the film approaches its "Process Before" date. The most noticeable change will be a slight shift in the overall color balance, but it will not be enough to adversely affect the normal use of these films.

For professional reversal films under reasonable ambient conditions, no significant change is noticeable in the first couple of months. Color shifts may be noticeable in the 3- to 9-month range, especially when films are critically examined on an illuminator. Greater color shifts will become apparent as the film reaches its expiration date, but they will be within a range that is readily corrected in any reproduction (e.g., duplicating, photomechanical reproduction). However, since editors and art directors may be influenced by moderate color shifts, refrigerated storage of professional color reversal films takes on increased importance. Avoiding color shifts is especially important with reversal films because you cannot make corrections before judging the final image as you can with color negative films. Refrigerated storage assures maximum consistency and minimal change through the expiration date.

Films intended for amateur use do not require refrigerated storage; changes that may occur at normal room temperature are anticipated during manufacture. While the rate of change is not significantly different in professional color films, more critical requirements

in professional images, narrower tolerances for change, and the costs associated with inconsistency in professional applications add to the value of refrigeration for extended storage. This does not preclude use on extended assignments (a few weeks to a couple of months) if you avoid adverse conditions such as high temperature and high relative humidity. A few specialty films intended for situations that prohibit refrigerated storage are also available. These films, intended for room-temperature storage, include KODAK EKTAPRESS GOLD Professional Films (available in 5-roll pro-packs and 50-roll press-packs) and KODAK EKTACHROME 64 Film and KODAK EKTACHROME 100 PLUS Film (in Press-Pacs). These films are intended for photojournalists and other professional photographers who use large amounts of film where refrigerated storage is not possible.