FILM

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Q,: What is acutance?
A.: Acutance is the edge sharpness of an image on film, an important characteristic of the film. A sharp knife edge may appear as a sharp line or a diffuse line on film, depending on the acutance of the film. Acutance is not necessarily related to the granularity of film. Some films with larger granularity generate a sharper edge than some fine grain films.

Q. Some of my slides are in glass mounts. Should I remove the slides from glass mounts to improve their archival storage stability?
A.: Some photographers remove slides from glass mounts for long term storage. This is a recommended procedure and a reasonable thing to do, although I have not noticed a deterioration of slides mounted in glass.

The slides in glassless mounts have an outstanding record of longevity. My Kodachrome slides stored in individual slots of metal boxes have not faded noticeably in over 50 years. The newer Kodak and Fuji E6 films have lasted at least three decades. Although glass mounts are not recommended for archival storage, the Kodachrome slides I had mounted in glass forty years ago are still good. However, some Ektachrome and Fuji slides which had been mounted in glass and projected repeatedly had formed a hazy film on the inner side of the cover glass. Apparently a volatile substance, perhaps the plasticizer, had evaporated and condensed on the glass. Although the slides inside the mount still looked good, it is prudent to project only duplicate slides. Save the original for archival storage.

Q.: Can color slides be scanned in glass mounts?
A.: Yes, with some restrictions. The mounted slide must fit the slide feeder of the scanner. The MA-20(S) adapter used in recent 35mm Nikon scanners has a slot for slides and a mechanism for ejecting the slide. The mounted slides must be between 1.0 and 3.2mm thick and from 49 to 50.8mm in width. The popular GEPE mounts are 2.3mm thick and fit easily. However, the Anti-Newton glass surface acts like a diffuser and may decrease the sharpness of the image

The glass mount can affect the contrast of the image. The Anti-Newton etching of the glass surface is like a diffuser. The softening effect is subtle and may not be noticeable.

Q.: Some images captured with a digital camera are converted to color slides. Isn't this a retrogressive process?
A.: Color slides are used in stock photography, for publication in magazines, and in photographic exhibitions. Whereas most magazines accept now digital files, color slides are still the main medium of photographic exhibitions. The declining number of color slide exhibitions in the USA suggests, however, that the interest in color slides is fading. Many international photographic exhibitions accept already digital files as well and expect digital exhibitions to replace color slides eventually.

The digital camera does not really have to end color slide exhibitions. When film was the main photographic medium, most images sent to photographic exhibitions or publishers were edited digitally and had the workflow: Film or slide>Scanner>Photoshop>CD>Film recorder>Color slide. A digital camera has simplified the workflow by eliminating the scanner: Digital camera>Card reader>Photoshop>CD>Film recorder>Color slide. The improved workflow of digital images suggests that the digital camera should boost slide exhibitions and contests but the opposite is true. The reason seems to be the changed habit of the consumer. Home slide projection is now becoming a history. Kodak has discontinued the popular Carousel projector line. Almost all of the point-and -shoot cameras are now digital cameras. Images are viewed on a monitor of a computer or a TV. The irony is that although it is now easier to make edited slides, the color slide has lost its prominence as the exhibition medium.

The convenience of mailing images electronically and the easy of organizing "slide" shows have fueled the interest in digital contests. However, the replacement of color slide exhibitions with digital contests has not been going as smoothly as expected. The projection of digital images has still serious problems, the quality of the projected image being the main issue. The resolution and color accuracy of the digital projectors are still inferior of film projection. One of the basic problems is the lack of digital projectors designed for photographic use. The projection of photographs requires a square field for accommodating vertical and horizontal images. The aspect ratio of the existing digital projectors limits the area of projected vertical images to less than a half of the area of horizontal images.

The decline of color slides has a serious, largely unrecognized consequence. A color slide, especially the Kodachrome slide, is the only color photographic medium of proven archival storage stability of 50 years. The future of the rapidly advancing digital technology is unpredictable. Remember the floppy disk and the 3.5" disk? The CD is being replaced with a DVD but which DVD format will prevail? What comes next? The only reliable archival storage of digital images is to convert a digital file to a color slide.

Q.: Can Kodachrome film still be processed?

A.: Yes, fortunately. Kodachrome film, sent to Kodak in the prepaid mailer, is processed at P.O. Box 3640, Hampton Park, MD 20791-3640. I have found the quality of processing to be satisfactory. Kodachrome film is the only known and proven color storage medium lasting 50 years. As long as Kodachrome will be available, we should use it for archival storage of valuable images.

Q.: How do the three Velvia films differ?

A.: Fuji replaced the very popular Velvia 50 film with the Velvia 100F film. The new film has even a finer grain than the Velvia 50 and more natural colors. However, the lower color saturation of the new film frustrated the enthusiasts of Velvia 50. Fuji produced another film, the Velvia 100, which has the high color saturation of the Velvia 50 but a higher sensitivity (speed).

For my needs, the Velvia 100F has enough color saturation and contrast. You can increase the color saturation in the Photoshop but you cannot open blocked shadows.

Therefore, I am using often Provia 100F, a film with a normal saturation, where I used Velvia 100F before.

Q.: Digital photography will not displace film completely but has the color slide (transparency) film become obsolete?
A.: No doubt, the color slide film has lost much of its importance. Most publishers (but not all) accept now digital files. Kodak has discontinued their slide projector line, expecting the consumer to view the digital images on the TV screen or project them digitally. Digital projection may dominate photographic exhibitions when the cost of digital projectors suitable for large audiences will come down. Although the quality (color gamut, tonality, and resolution) of a slide projected on a large screen has not been surpassed by digital projection, the inconvenience and cost are significant disadvantages of mailing slides.

Color slides have still several advantages over other imaging media. A color transparency is a picture in hand instead of a digital image on a CD. It is easier to sort 20 color slides on a light box than to compare on the monitor 20 digital images which have been stored on 8 different CDs. Organizing and filing digital images takes more time than storing slides.

Film is still the superior source of information. Prints can be made from slides or negatives but the important difference is the archival storage of the original. Color slides are much more stable than the color negative film. The storage stability of color negative film depends on the processing conditions and is not quite predictable. I have made acceptable prints from 30 years old color negatives but most of the color negatives have faded considerably and many negatives have become useless in less than 20 years. In contrast, 40 year old Kodachrome slides properly stored are still useful. The storage stability of other transparency films has been improved and exceeds that of color negative films.

The long term durability of images stored on CD or DVD disks remains to be proven. Already occasional problems with the retrieval of the stored images have shown up. The availability of software for reading CD images in the distant future is another unanswered question. The known record of storage stability may be one of the several reasons why transparency film will not disappear in the foreseeable future.

Q.: Dyes used in color slides are known to change in time. How long does a color slide last when stored in dark?
A.: Fading of slides during dark storage is a complicated process affected by several factors: the film, processing conditions, and storage conditions. Kodachrome is processed by the special K-14 process and the slides are stable for at least 40 years, if properly stored. The other color reversal films are processed by the E-6 process. The slides are less stable than Kodachrome slides because an excess of color forming chemicals is left in the film. The old Ektachrome 64 slides have turned red regardless how they were stored. The stability of the new E-6 films has been greatly improved. Their dark storage stability depends on the processing conditions and is therefore not as predictable as the stability of Kodachrome slides. Kodachrome is the most reliable color medium for archival storage surpassed only by silver based black and white film or prints.

Q.: What is cross-development?
A.: Cross-development is a process of developing a slide (transparency) film with the C-41 process like a color negative film, or developing a color negative film with the E-6 process like a slide film. Cross-development achieves unusual color effects.