film

We perceive light as many colors. To most standard films, there are only the three primary colors: RED, BLUE and GREEN. Add the three colors of light together and you get white light.

black and white film:

In black and white film, there are millions of microscopic crystals of silver halides, suspended in a thin layer of gelatin -- the emulsion.

These silver halides are sensitive to light, which changes their chemical structure. The more light, the greater the change. But until the film is processes, this change is undetectable. It is called a latent image.

When bathed in a chemical developer, the silver halide crystals release their metallic silver, which clings to the latent image, slowly increasing the density.

The more light that “exposed” a certain area of film, the more silver will be developed -- forming a “negative” or reverse image of the scene recorded. An area that hasn’t been exposed has little to no silver, leaving that area of the negative transparent.

The film also has a top coating to protect the silver image, and a backing that prevents light from reflecting through it.

color negative film

Just like a computer monitor, color film uses the three primary colors, Red Green and Blue layers.

Light travels through the top coat, to a layer containing blue sensitive silver halides.

A yellow filter layer below blocks the rest of the blue light.

Next is a green sensitive emulsion, then a red sensitive emulsion.

The developer for color negative film, referred to as C-41 chemistry, first converts the three layers into three black and white layers. Later in processing, the layers are converted to a dye image.

A orange-colored dye mask is added to help with the printing.

transparency film:

works the same way, except that an additional chemical bath, called a reversal bath, is added to the process.

Amateur film vs. professional film

Film has organic components and ages.

Amateur film is designed to age on the shelf of a store. Be sure to check the date of the film, before you buy, to insure it isn't expired. It comes in a variety of roll lengths, for convenience.

Professional film is refrigerated, because it is sold at its peak. It should be refrigerated until ready to use. It only comes in 36 exposures. Usually more expensive than amateur film.

Film can go bad. If exposed to extremes of temperature, color film can suffer from color shifts, making it impossible to get a good print. Also, the film speed can change.

- Don't leave it in a car. (Refrigerator or freezer is okay.)

All film should be processed as soon as possible, to get the best results.

Speeds of film:

Like Heinz, there are a wide variety of films and film speeds -- depending on what you want to do with it

Higher speed films have more silver content, to make them more light sensitive. Therefore, there is an increase in the grain (especially at larger print sizes) and in the cost.

Slow: 50, 100 and 160 ISO. Very fine grain, but also contrastier images because of this. Able to be blown up to make large prints. But slow, limiting choices in exposure.

Professional versions, like Reala and Kodak Portra VC and NC have an additional layer, which renders fluorescent light white.

Medium: 200 to 400. Still remarkable color and grain.

Fast: 800 and 1600. Grainier. Fuji 800 and Kodak Portra 800 are Photojournalist's film. Impressive grain to speed. Pricey.

Flavors of film (the color of the box gives you an idea of what the film will look like)

Kodak -- known for great yellows and reds

Fuji -- phenomenal greens and blues

Agfa -- neutral (except for Ultra series of heavily saturated film)

People film -- Fuji Reala, NPH (400 iso)
Kodak Portra NC and VC series.
Agfa Portrait.

Fun film -- Agfa Ultra and Kodak Ultra. Super saturated colors.

Chromagenic -- Kodak 400 BW and Ilford XP-2. Get black and

white prints from “one-hour” lab.

Specialty-- Infrared. Color infrared. Records spectrums invisible to eye.

Tungsten: balanced to neutralize warm incandescent light.