FILM CLEANING AND LUBRICATION

(Dr Film)

How often? Most importantly, don't over clean! Many collectors become positively paranoid about cleaning their films. Their compulsive efforts are better directed to keeping the projector and it's film gate clean. Barring unusual circumstances, once a film is cleaned it need not be cleaned for several years. Over cleaning is trauma to film. Too much film chemical will soften tape splices and discolor plastic reels. Use chemical sparingly!

What chemical? According to literature dating as far back as 1960 up to the present, Kodak says:

"One of the best solvents found to date for nonmechanized film cleaning is methyl chloroform. It has relatively low toxicity, is nonflammable, evaporates quickly, removes most varieties of film dirt, is relatively inexpensive, and has antistatic properties."*** Unfortunately, since publishing that statement (which still appears on Kodak's web site) Kodak sold its chemical business and due to potential ozone depletion, the world's environmental science community recommended a cease in the manufacturing of this solvent after 1995. Some old stock may still be found, but it is no longer readily available. It is also known as 1-1-1 Trichloroethane. If you can get trichlor don't be afraid to use it. It is not a carcinogen. However, because of its toxicity, the "CAUTION! Harmful if inhaled" is required. It evaporates very fast and does an excellent cleaning job, but use it in a well ventilated area and wear rubber gloves as it is very drying to the skin.

When methyl chloroform became scarce, many labs began and continue to us Perchlorethyline (tetrachloroethylene) as the next best choice. It's nonflamable and other than having a slightly slower evaporation time, matches trichlor's excellent cleaning and degreassing ability. It is readily available from dry cleaning supply houses, as it is the basic solvent used by dry cleaners. The U.S. Department of Health and Human Services has determined that it may reasonably be anticipated to be a carcinogen. Based on evidence from animal studies, it is thought to be capable of causing cancer in humans. It should be emphasized, however, that currently available information is not sufficient to determine whether Perchlorethyline causes cancer in humans. As of December, 1999 it costs $7 per gallon for a 5 gallon case. "Perc" should be used in a well ventilated area and wear rubber gloves.

The most readily available chemical effective for cleaning film and without cautionary warnings is Isopropyl Alcohol. This is the rubbing alcohol which you can buy cheaply in any drug store. Comparing Isopropyl Alcohol with the previous two is like comparing a Ferrari to a VW bug. It's not the excellent cleaner/degreasser like trichlor or perc and it has a much slower evaporation rate, but it does clean film nicely and without any of the cautionary warnings. Your work will take a bit longer and stickey adhesive spots will require a bit more attention, but the usual dust and dirt that film attracts cleans up nicely.****

How to clean your film: Simply use a nice, soft, lint free cloth..... keep it moist .... fold it into a pad and lay it on a firm surface.... using your rewinds, run the film thru the cloth while applying light pressure on top of the pad with your hand. Most importantly, distance the pad from the take up reel and run the film through the cloth slowly enough so that the chemical evaporates off the film before winding up on the take up reel. <u>You don't want it winding up wet</u> . This would cause the film to spot, get stuck on

itself and getting damaged. Change cloths when noticeably dirty. Check the cloth often making sure it is not scratching film. Proceed to lubricate the film.

Lubrication

Cleaning with straight chemical effectively removes the film's dirt and lubrication. Now the film should be put through a full coat lubrication. If the film was not very dirty to begin with, it is advisable not to use the straight chemical at all, but rather use a full coat cleaner/lubrication solution applied in the same manner as described previously.

This from Kodak***: "Many oils and waxes are not suitable for full-coat lubrication of film because they form globules or mottle instead of a smooth, uniform coating. On prints, such mottle causes flicker or random variations in density. Hence the nature of the oil or wax used, as well as the solvent used to dissolve and coat it, is of critical importance. Before it is used, any lubricant formula must be carefully tested for its temporary and permanent effects on the film. One satisfactory formula for lubrication follows:

Film Lubricant Formula (full coat)	
PE Tetrastearate (Pentaerythritol tetastearate)*	0.59 g
Methyl Chloroform (inhibited)**	1 L

*Kodak's chemical business was sold to Fisher Chemicals. Pentaerythritol tetastearate is a synthetic wax powder available under their product #AC41691-1000. 100 grams for $21.00

**Methyl Chloroform (inhibited) aka 1-1-1 trichloroethane is no longer being manufactured. Perchlorethyline or Isopropyl Alcohol are alternatives.

***http://www.kodak.com/country/US/en/motion/support/processing/h242/h2402_04.shtml

**** Kodak cautions against the use of any alcohol as a film cleaner stating that "some types can soften the emulsion, or the base, and can increase the risk of abrasion during the cleaning process". After five years of use the aSuthor has failed to ever experience any such result with Isopropyl Alcohol.