

Section taken from:

The Armed Forces Museums & Archives, Archive Manual

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10. [HALS] Caring for Film and Sound Recordings

Cinefilms, video and sound recordings are mostly made of quite fragile polymers (plastics) and, as such, have a finite life. Some will take longer than others to decay and this usually depends upon how well they are looked after.

If you want to keep such materials for any length of time in good condition, they will need particularly careful handling and storage. Master material (including original oral history tapes) should be stored separately and not be used for research or display; only copies should be used in this way. Old, non-maintained equipment can severely damage items.

It is advisable to store film and sound recordings in their proper containers in dark, cold and (not too) dry conditions, which are as constant as possible year round. They should be stored away from pipes, heaters and radiators, sinks, windows, electrical appliances and concrete floors. Lofts, basements, garages, sheds, bathrooms, kitchens, utility rooms and conservatories are not suitable. Excessive temperatures, humidity and dirt can destroy films and sound recordings, as can fire, flood and contamination from insects and rodents.

Reasonable temperatures for long term storage lie in the range 10-16°C (50-60°F) within a low relative humidity of 50-55%; over 65% allows mould growth to occur and may trigger other problems like 'vinegar syndrome'. Official recommendations for archival storage are more stringent and depend upon the type and format of material concerned: most colour films will eventually fade unless kept below 2°C, for example.

Things to look out for

- Tapes which 'squeal' or stick when replayed - they may be affected by 'sticky tape syndrome', where the binder between the magnetic coating and base has been affected by damp and migrated to the tape surface. It may be chemically deteriorating and require specialist conservation treatment before copying.
- Light - the ultraviolet end of the spectrum can cause breakdown in polymers, so film and sound recordings must be protected from it in storage.
- Pollutants like dirt, dust, fingermarks and atmospheric pollution. These can be reduced by clean storage, careful handling, good packaging (but not totally sealed), no smoking, eating or drinking nearby, and using clean equipment.
- Shedding tape coatings - often shows as missing signals when playing tapes (called 'drop out' on video tapes), or a build up of oxide on tape heads and guide rollers, and may be caused by the tape itself or the replay equipment. Some tapes are affected after just a few years from manufacture, so this is not always due to old age.
- Shrinkage - a sign of old age, but not the only one: central heating can dry out film and sound recordings, for example, also causing other problems like warping, cracked surfaces on discs and splices which come undone. Careful repairs and conservation treatment are needed and affected items should not be replayed or projected, because of the damage that may result.
- CDs & DVDs - the recordable variety are particularly vulnerable to pollutants and light, even adhesive labels and pen marks, in the long term. To keep the contents for archival purposes, use discs with a gold metal reflective layer, store on end not flat, and use 'jewel cases' or special conservation grade envelopes. Best conditions: 18°C at 40% relative humidity.

Cinefilm on a cellulose nitrate base - 35mm film made before 1952 - is unstable and highly flammable. Chemically it behaves in a similar fashion to gun cotton and is particularly dangerous when decaying, especially in the final powdery state. In extreme cases it can self-ignite, and burns with a very fierce flame,

giving off highly toxic gases. It should not be stored in a private house, museum or library, but should be duplicated onto safety-base film and the nitrate original lodged in a specialist store, disposed of by a licensed firm or taken to the 'hazardous household waste' container at certain managed waste facilities (tips).

Other cinefilms are on safety bases and fairly stable chemically, unless damp conditions trigger mould or acetic acid decay. The latter is better known as 'vinegar syndrome', because of its distinctive smell*, and affects films on acetate safety bases but not polyester and it can also affect audio tapes. Magnetic film soundtracks are particularly vulnerable, as they readily absorb moisture from the air, and this includes 'striped' film. The noxious gases given off are hazardous to health and can 'infect' other films and tapes in the vicinity. Remove immediately and seek specialist advice.

(* Not to be confused with the smell of mothballs - camphor - or other treatments sometimes used to 'preserve' films in the past).

Mould is also a health hazard and should not be touched by hand or its spores breathed in, as this may trigger allergies or asthmatic attacks in some people; wear gloves and dust mask when handling. Mould will readily grow on film and sound recordings, attacking emulsions, tape binders, plastic reels and cassette housings, gramophone discs and wax cylinders. The growth looks like dull spots and is encouraged by enclosures like plastic bags and sealed containers, which do not allow the plastics to 'breathe'. If caught early, specialist conservation treatment can help correct this problem, but copies need to be made as soon as possible thereafter.

Useful links

Digital Preservation Program - downloadable copy of *Care and Handling for the Preservation of CDs and DVDs - a guide for librarians and archivists*.

<http://www.itl.nist.gov/iad/894.05/docs/CDandDVDCareandHandlingGuide.pdf>

Film Forever - simple guidelines for preserving cinefilm outside of specialised archives, with a focus on storage at home.

<http://www.filmforever.org>

Screensound - Australia's guide to personal preservation of audio, video, film and still images

<http://www.nfsa.gov.au/preservation>

