

MEDIA PRESERVATION CHART

Independent Media Arts Preservation www.imappreserve.org 5/

01 **Characteristics** **Problems** **Actions** **FILM** Formats include 35mm, 9.5 mm, 16mm, regular 8mm, Super-8

Film bases:

35mm:

1895-1951 – nitrate

1920's to 1930's – could also be diacetate

1940's to present - triacetate

from 1980's – could also be polyester

16mm film:

1920's to 1930's – probably diacetate

1940's to present – triacetate

from 1980's could also be polyester

8mm: triacetate except Fuji Super-8, which is polyester

- Damage from use: scratches, sprocket & edge damage, tape & cement splices
 - Vinegar syndrome (acetate-based film are susceptible) – moisture and air interact to create acetic acid; emulsion pulls off, warping, shrinkage.
 - Nitrate deterioration – very flammable
 - Color fading
 - Ferrotyping
 - Shrinkage
 - Brittleness
 - Watermarks
 - Mold
 - Staining
- Store in cold, dry environment –
For color, 0° F preferred; 30° F with 25-35% RH sufficient

Temperature especially important to reduce color fading
For black & white, 25-50° F with 25-35% RH sufficient

Store on cores, not reels (except for Super-8) with ends taped down, in inert plastic polypropylene cans

Store flat in same size stacks; no more than 6 high

Remove all paper from cans

Molecular sieves in cans is recommended to absorb acetic gasses

Store magnetic fullcoat separate from corresponding workprint or reversal

Do not “photoguard” (a sealant)

Test acidity of films and segregate films with vinegar syndrome

Store nitrate-based film in specially designed vaults

Clean mold using proper equipment & safety precautions. Repair damage from use.*

Ideally, transfer film – film at same gauge as original. Small gauge films are often “blown-up” to 16mm. Set transfer priorities based on types of deterioration.*

* This handout was adapted by Independent Media Arts Preservation from “Recommended Conservation Practices for Archival Audiovisual Materials held in Special Collections” by Linda Tadic of HBO, March 2001; please consult for details.

CharacteristicsProblemsActionsAUDIO/VIDEOTAPETypical Video Formats include 2” quad, 1”, 1/2” open reel. 3/4”, Betamax, VHS, 8mm, Hi-8mm, Betacam, DV. See the Video Format Identification Guide. <http://216.149.118.71/VideoID/>

Typical Audio Formats include 1/4” open reel, cassettes, DAT (digital audio tape)

Most video and audiotape is polyester-backed. However, audiotape from the 1940’s to 1960’s could be paper or acetate-backed.

Ampex audiotape from the late 1970’s through the early 1980’s is especially susceptible to sticky shed syndrome.

- Damage from use can include edge damage, cinching, drop out, tape breaks, tape stretching, demagnetization.
- Print-through – magnetization of one layer by another
- Sticky shed syndrome - deterioration of the binder caused by moisture
- Mold
- Vinegar syndrome (paper and acetate-based audiotape)

- Acid in paper causes deterioration with paper-based audiotapes.

- Hardware/format obsolescence

Store in cold, dry environment, not below 46° F. 50 - 60° F with 30-40% RH recommended over long term.

Store upright in inert plastic polypropylene cans, not in cardboard. Remove all paper from cans. Store audio reels on NAB metal reels with ends taped down.

If you have well-calibrated equipment, fast-forward, then re-wind tapes before storing. (Not for older, deteriorated tapes.) Keep away from strong magnetic fields.

Transfer or remaster to another tape format. There is no consensus on formats – some recommend migrating to an analog and digital tape. Set transfer priorities based on format and type of deterioration.*

Save original media, hardware & documentation **DIGITAL/OPTICAL MEDIA** Three optical media: ROM (Read only memory), write-once, erasable. Typical formats are CD, DVD.

CDs have 3 layers: polycarbonate substrate, metallic reflective layer, protective lacquer coating

- Optical media:
- Damage from use: scratches and dirt, damage to lacquer coating from inks/dyes from labels and pens, shattering, improper handling, improper cleaning.
 - Oxidation of recording surface (high humidity)
 - Pollutants – cause premature oxidation and disappearance of reflective surface
 - Poor quality materials, manufacturing and/or recording

- Hardware/software/format obsolescence

- Tapes storing data have same problems as magnetic tape above See audio/videotape above for tapes storing digital information

Store data on servers and removable media (backups). Store optical media in jewel case or inert plastic container, not in plastic sleeve.

Migrate digital media at least every 5 –10 years. There is no consensus on formats. Some recommend software emulation as a long-term solution to viewing digital information. See also research on a “universal preservation format”. www.wgbh.org/upf

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