



Film and Video: Care and Identification

Digital Stewardship Curriculum

Film and Video formats

- Film
- Magnetic Video Tape
- Optical Video
- Digital Video



- Marcel Oosterwijk from Amsterdam, The Netherlands / CC BY-SA (<https://creativecommons.org/licenses/by-sa/2.0>)
[https://commons.wikimedia.org/wiki/File:Old_celluloid_film_rolls_\(5201105455\).jpg](https://commons.wikimedia.org/wiki/File:Old_celluloid_film_rolls_(5201105455).jpg).

Film formats

- 8mm, super 8mm, 9.5mm, 16mm, 35mm
- Photochemical emulsion on a plastic backing
 - Nitrate
 - Acetate
 - Polyester
- Sprocket holes
- Soundtrack

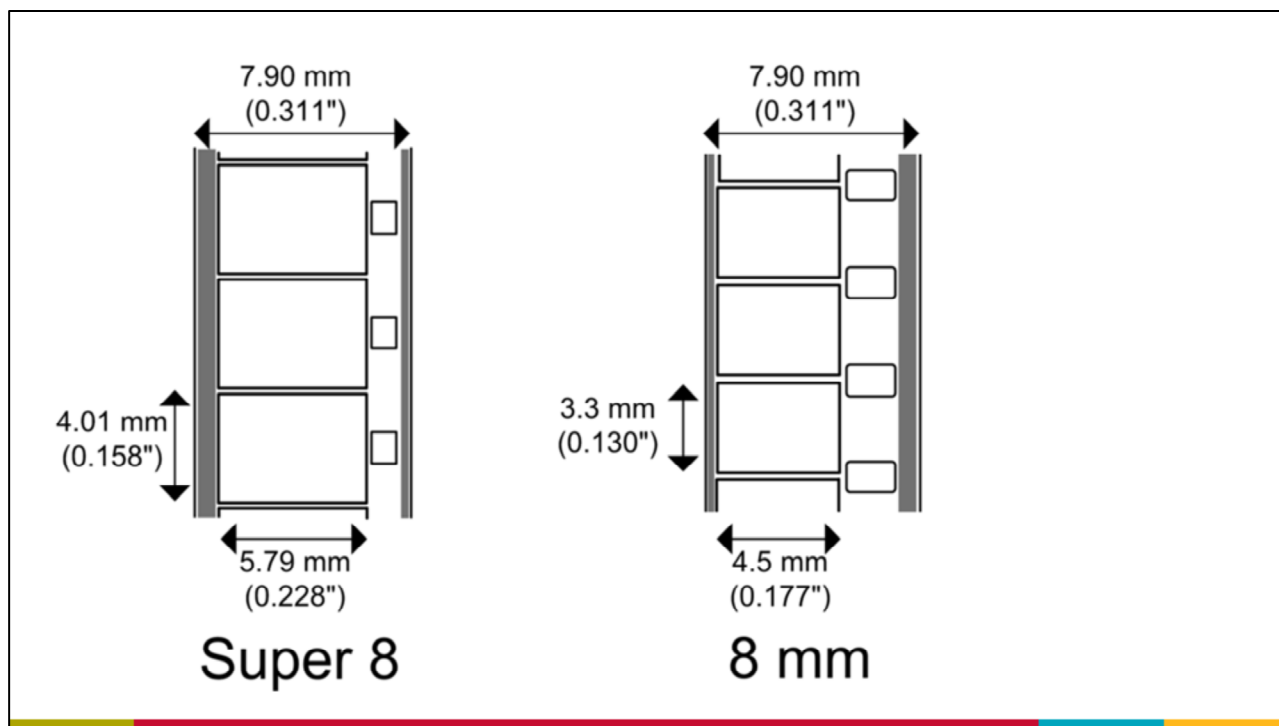
- Film bases = nitrate, acetate, or polyester.
- Sprocket holes on one or both sides.
- Soundtrack can be attached or separate.

- Most 35mm film bases prior to the early 1950s are composed of cellulose nitrate. NOTHING AFTER 1951 is nitrate (but photographic film negatives can also be nitrate)
- Nitrate is a highly flammable material, with nitrate fires being nearly impossible to extinguish once they've started. It can ignite at relatively low temperatures—ranging from 300°F to 105°F in later stages of decay. Lets off flammable gas when it decomposes.
- In the 1920s, Kodak began labeling nitrate film by printing "NITRATE" on the edge of the film. Nitrate film is the highest preservation priority. "NITRATE" printed along the edge of the film. Nitrate is found most often in 35mm gauge.
- Nitrate odor has been described as the smell of dirty socks.

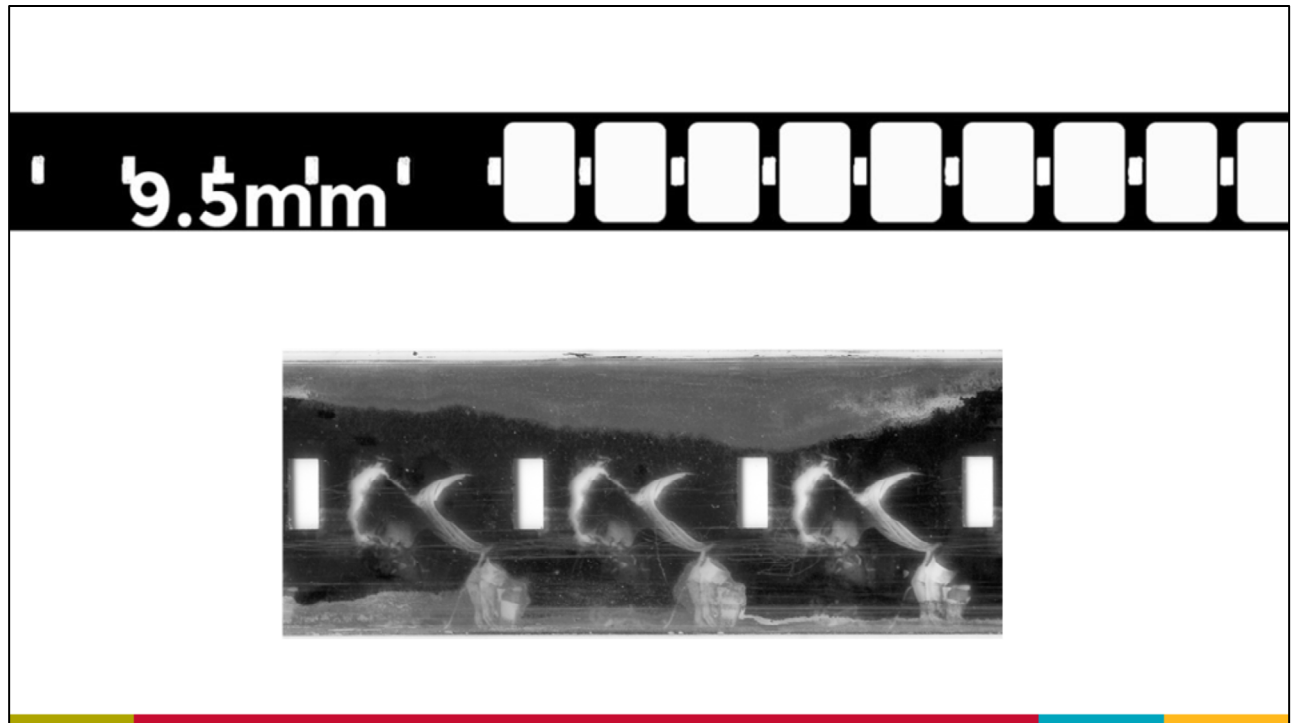
- Acetate film is the second-highest preservation priority.
- Acetate is found in 35mm, 16mm, 8mm, and Super 8 gauges.
- Acetate will often emit an vinegar odor if it is suffering from acetate decay.
- Store acetate film separately from other materials in order to mitigate the effects of acetic acid decomposition (e.g. off-gassing).
- The easiest way to differentiate acetate base film from polyester base film is to hold the film up to the light (see below for an image). If it appears to be fairly opaque, it is acetate (Note: the reverse is true of magnetic audiotape).
- Polyester film is the lowest preservation priority.



- 8mm
 - Super 8 film on reel. Note the slight spoking, or waviness, at the outer wind of the film pack; this is a symptom of vinegar syndrome, the primary threat to acetate films.
- Images: <https://psap.library.illinois.edu/collection-id-guide>



- 8mm and Super8 are of a similar size, but are different.
- Max Smith, User:Janke / Public domain
https://commons.wikimedia.org/wiki/File:8mm_and_super8.png.

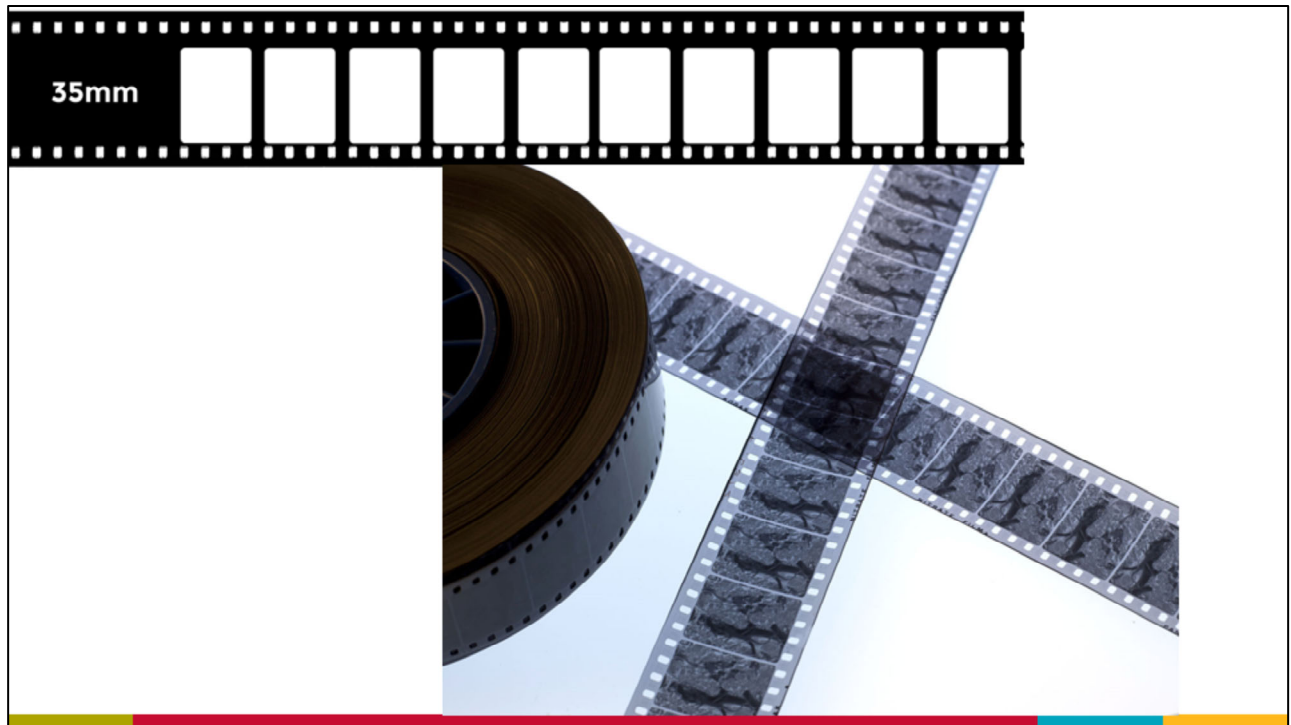


- 9.5mm film: center - aligned perforations. Image by Ryan Edge, available under a Creative Commons Attribution ShareAlike license ([CC BY-SA](#)).
- 9.5mm film strip. Three frames of cine film displaying the iconic central sprocket perforations. Image captured by Wikimedia Commons user Velela, available under a Creative Commons Attribution ShareAlike license ([CC BY-SA 2.5](#)). Film content available in the public domain.

16mm



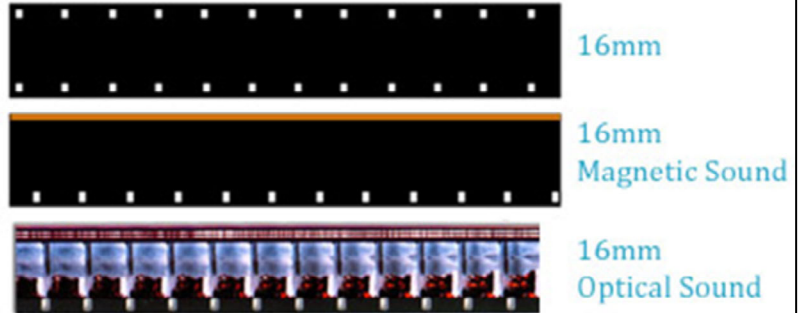
- 16mm
 - 16mm and Super 16mm film strips. Image by Ryan Edge, available under a Creative Commons Attribution ShareAlike license ([CC BY-SA](#)).
 - 16mm film on inert polypropylene hub in a metal can. Note the white film leader. Image by Flickr user DRs Kulturarvsprojekt, available under a Creative Commons Attribution ShareAlike license ([CC BY-SA 2.0](#)). Courtesy of the Danish Broadcasting Corporation.



- 35mm film strip. Image by Ryan Edge, available under a Creative Commons Attribution ShareAlike license ([CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/)).
- Black-and-white 35mm nitrate film, backlit on light table.

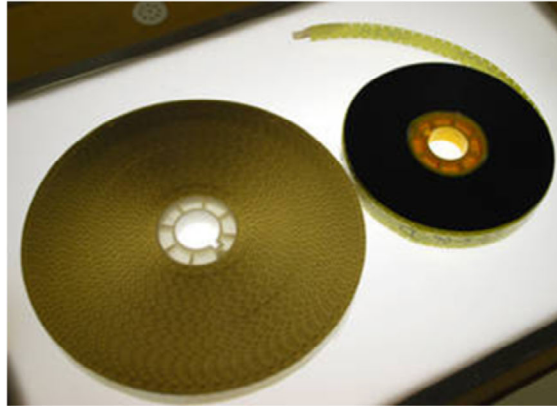
Soundtracks

- Separate audio
- Attached audio
 - Magnetic
 - Optical



- Separate magnetic soundtrack, attached magnetic soundtrack, attached optical soundtrack.
- Optical and magnetic soundtracks on film. Image by Ryan Edge, available under a Creative Commons Attribution ShareAlike license ([CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/)).

Open reel film backing materials:



Acetate

Polyester

<https://psap.library.illinois.edu/collection-id-guide/film>

- To identify acetate, place the film pack parallel to a light source. If light cannot be seen piping through the film strands, it is most likely an acetate-base film. The film will appear opaque and light will not filter through the film pack. The easiest way to differentiate acetate base film from polyester base film is to hold the film up to the light. If light easily passes through the film pack, the film is polyester. If it appears to be fairly opaque, it is acetate.
<https://psap.library.illinois.edu/collection-id-guide/film#film16mm>.
- Please note, magnetic audio is the opposite (light passes through acetate, while polyester is opaque)

Film Preservation and Storage

- **Preservation Issues**
 - Mold
 - Warping
 - Vinegar Syndrome
 - Improperly wound pack
 - Sticky shed
- **Outsourcing**
 - Digitization
 - Conservation/Preservation

- Deterioration of the film base - vinegar scent = acetate or polyester (nitrate=dirty socks).
- Can buy little packets to help stabilize, buy ph tester strips to stick in each can - know changes before you start smelling stuff!
- Film can be very fragile, but you can see what is on it! If you think you need help - you can outsource.

Film Storage and Handling

- Clean hands or gloves
- Wind on cores
- Store flat
- Plastic vented cans or cardboard

- GLOVES - some people feel strongly against using gloves - important to have CLEAN, DRY hands no matter what. You vs. others.
- Plastic cores - not metal film reels.
- Store flat but not stacked!
- Use materials for storage that pass the PAT - archival safe, vented helps circulation if collections are not in COLD storage.
- COLD storage if possible.

Magnetic Video Tape Formats

- Open reel - $\frac{1}{2}$ ", 1", 2"
- Cassettes and cartridges: VHS, MiniDV, U-matic, Beta, Video8, D2, D3, DVCAM, DVPRO, Betamax
- Magnetized particles on a polyester backing, attached with binder
 - "Sticky shed" is the binder breaking down
- Store vertically, on edge in case



- 1/2" open reel video (Sony V-32), slightly crinkled tape. Image by Flickr user windhoek, available under a Creative Commons Attribution NonCommercial ShareAlike license ([CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/)).
- 1" open reel video (Type C) with plastic case. Image by Flickr user DRs Kulturarv Projekt, available under a Creative Commons Attribution ShareAlike license ([CC BY-SA 2.0](https://creativecommons.org/licenses/by-sa/2.0/)). Courtesy of the Danish Broadcasting Corporation.



- U-matic cassette. Image by Lori Dedeyan, available under a Creative Commons Attribution-NonCommercial-ShareAlike license ([CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/)). Courtesy of UCLA Library Special Collections.
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- VHS cassette. Image by Flickr user Grant Hutchinson, available under a Creative Commons Attribution Noncommercial NoDerivs license ([CC BY-NC-ND 2.0](https://creativecommons.org/licenses/by-nc-nd/2.0/)).

Optical Video Formats

- DVD, Laserdisc
- Physical and digital obsolescence
- Transfer off of optical media in favor of digital storage
- Surface vulnerable to scratches
- Store upright in plastic containers



- Laserdisc: 1978
- DVD: 1995
- DVDs. Image by Lori Dedeyan, available under a Creative Commons Attribution-NonCommercial-ShareAlike license ([CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/)). Courtesy of UCLA Library Special Collections. DVDs. Image by Lori Dedeyan, available under a Creative Commons Attribution-NonCommercial-ShareAlike license ([CC BY-NC-SA 2.0](https://creativecommons.org/licenses/by-nc-sa/2.0/)). Courtesy of UCLA Library Special Collections.

Note: Emergency/Disaster Planning

- Have a plan in place for many kinds of disasters
- Identify valuable materials
- Know what is needed for all of your formats and risks for each
- Know how to recover from disasters
 - Follow your prepared disaster plan
 - List of who to call for help

More Resources

- Preservation Self-Assessment Program ([PSAP](#) Collection ID Guide)
- [Museum of Obsolete Media](#)
- Library of Congress
- [Connecting to Collections](#)
- Association of Moving Image Archivists

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