

Risks

Risks – High Risk Formats

Summary of Audio High Risk Formats

Format	Risk
Lacquer phonograph discs	High inherent risk of deterioration resulting in delamination that can occur unpredictably and rapidly
Digital Audio Tape	High playback obsolescence, due to lack of availability of equipment and parts (in particular heads) and challenges with interoperability
¼" open tape	High inherent risk of deterioration and high level of playback obsolescence
Shellac phonograph disc	High level of playback obsolescence due to the course groove property of the discs

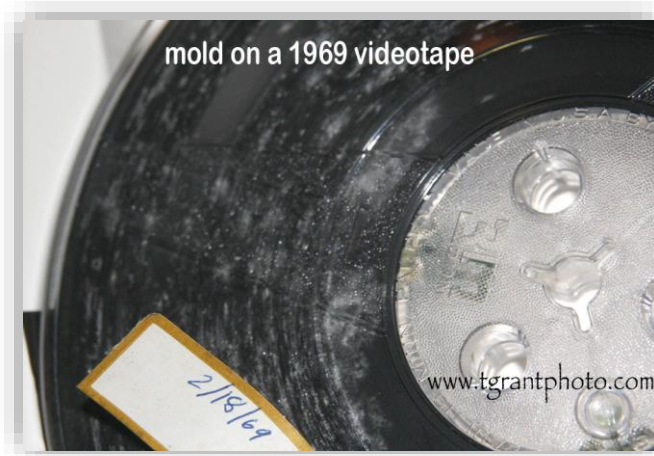
Summary of Video High Risk Formats

Format	Risk
½" open video tape	High risk due to inherent risk and obsolescence - playback is difficult to find
2" open video tape	High risk due to inherent risk and high obsolescence risk machines, parts and repair expertise
¾" U-Matic and U-MaticSP video cassette	High Risk due to playback obsolescence and reported deterioration, though not found in this assessment
Video 8 and Hi8 cassette	High risk due to equipment obsolescence
1" open video tape	High risk due to obsolescence, primarily. Inherent risk for deterioration is secondary
Betamax video cassette	High risk due to playback obsolescence

Risks - Tape

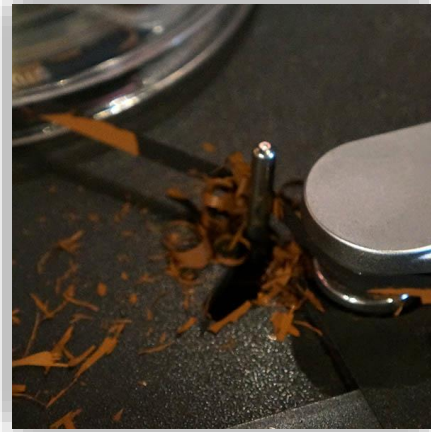
The most common degradation and risks to archival collections are due to environmental issues:

- mold,
- mildew,
- fungus,
- heat,
- humidity,
- dust



Risks - Tape

Handling or misuse of playback equipment (mechanical) result in tape damage and loss of data



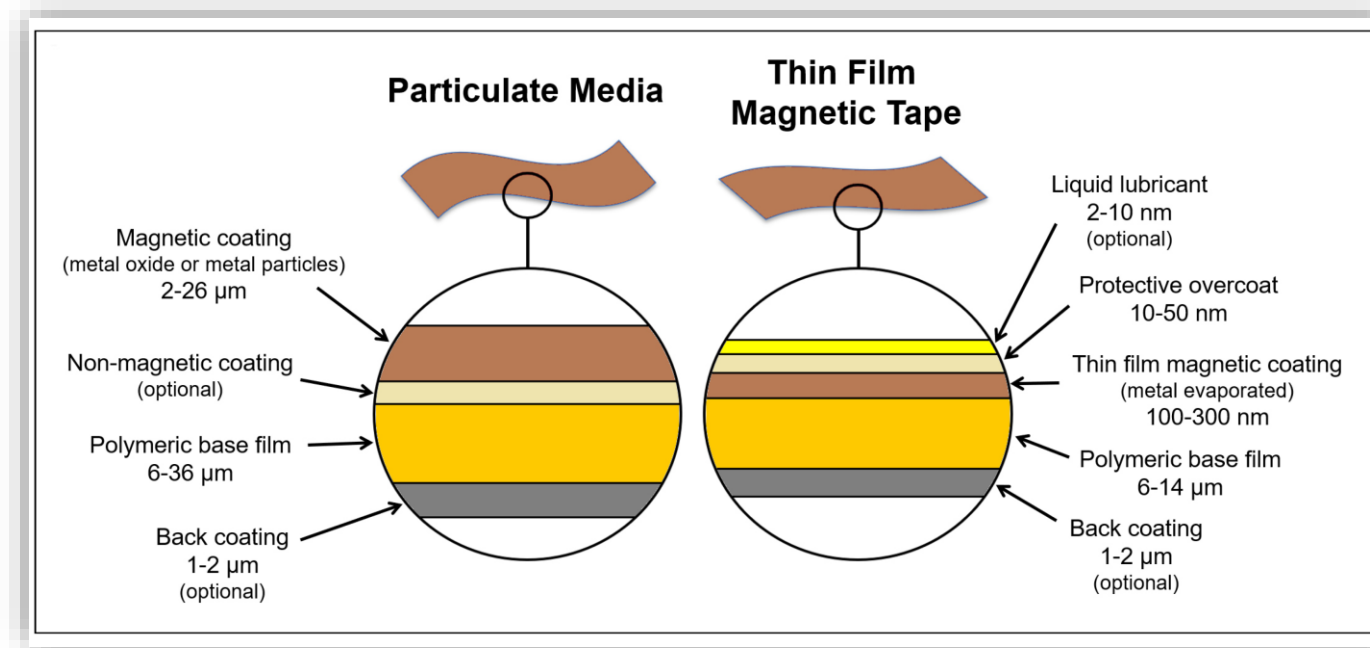
Risks - Tape

Binder Degradation: The binder is responsible for holding the magnetic particles on the tape and facilitating tape transport. If the binder loses integrity – through softening, embrittlement, loss of cohesiveness, or loss of lubrication – the tape may become unplayable. Sticky tape and sticky shed are commonly used terms to describe the phenomenon associated with deterioration of the magnetic tape binder



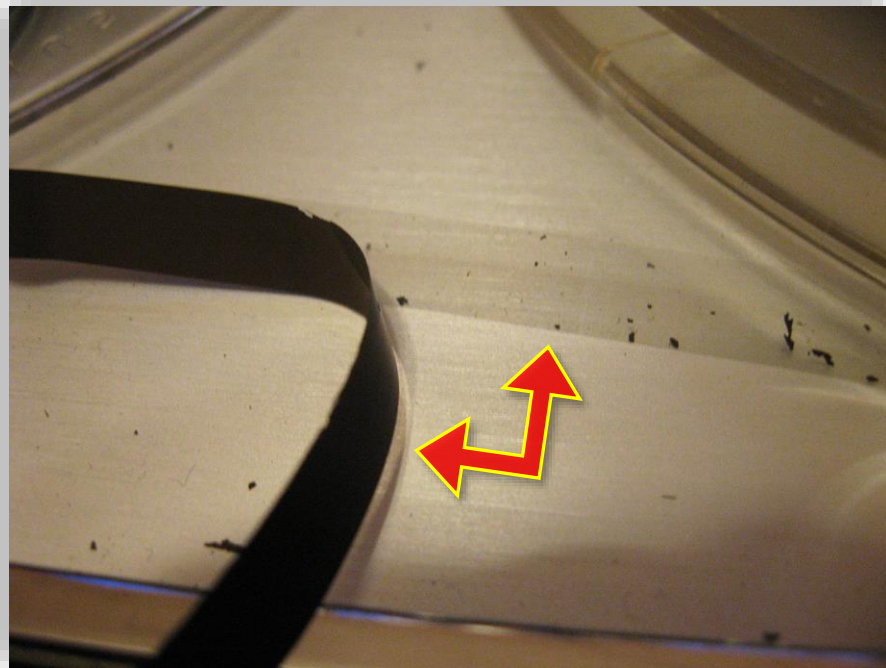
Risks - Tape

Magnetic Particle Loss: Any change in the magnetic properties of the pigment, recorded signals can be irretrievably lost. The magnetic remanence characterizes the pigment's ability to retain a magnetic field.



Risks - Tape

Sticky-Shed Syndrome: Sticky-shed syndrome is a condition created by the deterioration of the binders in a magnetic tape, which hold the ferric oxide magnetizable coating to its plastic carrier, or which hold the thinner back-coating on the outside of the tape



Risks - Film

Vinegar Syndrome: Vinegar syndrome is a concern for acetate-based tape. More properly referred to as acetate film base degradation, vinegar syndrome is a very similar problem to nitrate base deterioration. Its causes are inherent in the chemical nature of the plastic and its progress very much depends on storage conditions.



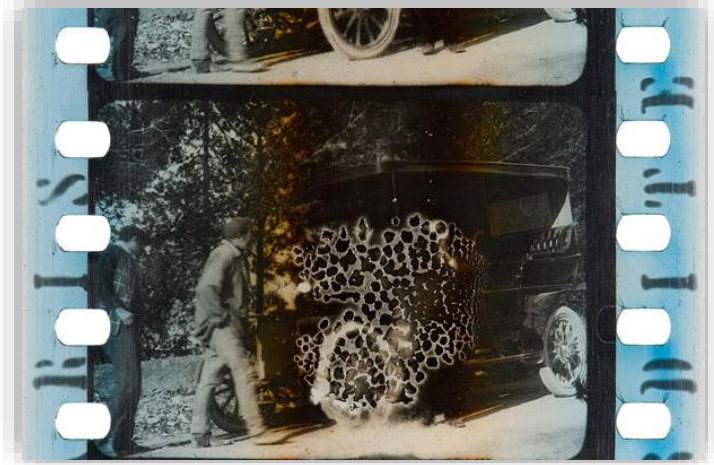
Risks - Film

Color Fading: Color fading is caused by spontaneous chemical changes in the image dyes of color films. This deterioration is not reversible.



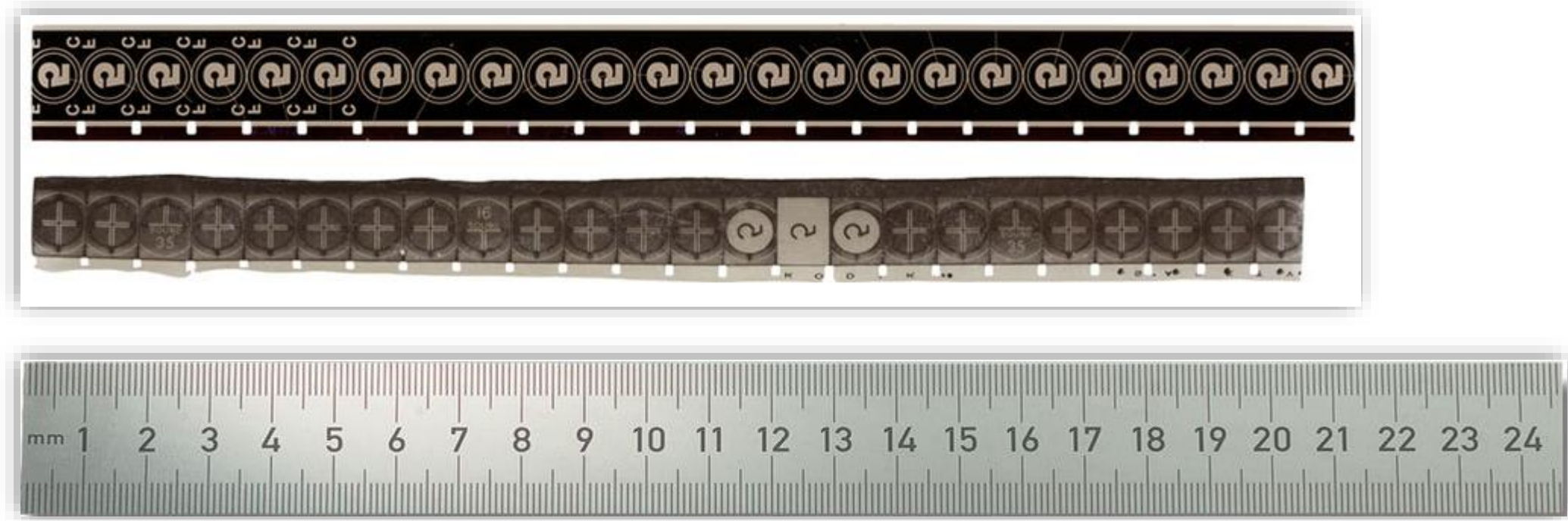
Risks - Film

Silver Fading: Images on black and white film are typically formed by metallic silver in a gelatin binder. When exposed to a combination of moisture in the environment and pollutants in the air or contaminants in the film's enclosure, this image silver will corrode.



Risks - Film

Shrinkage: Shrinkage is the loss of the original dimensionality of the film. Acetate and nitrate bases are both susceptible to a small initial amount of shrinkage after their manufacture due to the loss of solvents.



Risks - Film

Embrittlement: Embrittlement of film is caused by the loss of elasticity in the plastic film base over time. Both nitrate and acetate film supports are subject to brittling as they age.

