General Information: National Archives Motion Picture Preservation Lab

Work done in the Film Preservation Lab:

- Inspection
- Damage assessment and repairs
- Cleaning
- Timing/Grading (color correction)
- Printing new preservation copies of deteriorated films and magnetic soundtracks
- Black and White Processing (developing)
- Quality Control
- Digitization for reference and theater copies
- High Intrinsic Value Scanning and Restoration

Digitization Processes:

- 4K scans of 35mm and 2K scans of most 16mm material (preservation-level scanning)
- HD transfer for intermediate and reference access
- High Intrinsic Value Restoration Projects: Scratch/dust removal and color correction
- Transferring and processing takes 2 to 8 times as long as traditional methods
- 10 min. of film equivalent to 1 TB of storage (color film at 4K resolution)

Types of Decay:

Mechanical decay due to long-term storage in high humidity, long-term storage in extremely low humidity, rapid drying after being wet, and/or loss of solvent causes:

- Deformation in size and shape
- Shrinking
- Swelling
- Brittleness
- Cracks and Tears
- Softening
- Buckle
- Edgewave
- Twist and Curl
- Spoking
- Emulsion Fogging (emulsion separating from base)
- Ferrotyping

Chemical decay due to storage with paper or foam, adhesive decay, contamination by fumes, and/or spontaneous, natural causes:

- Silver image fading
- Silvering Out/Mirroring
- Dye fading
- Vinegar Syndrome

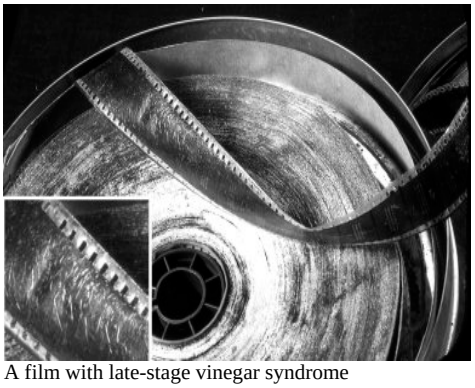
Biological decay caused by mold, insects, animals, and /or bacteria (very rare)

Other Factors:

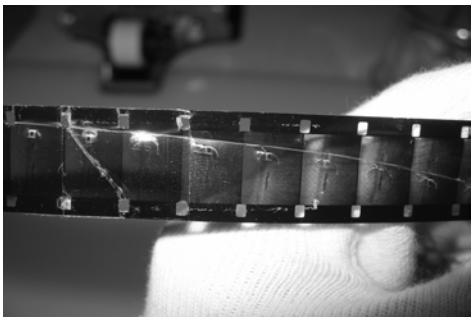
8 major types of color film for motion picture film encapsulating over 30 types of processes

5 major types of sound for motion pictures encapsulating over 50 variants

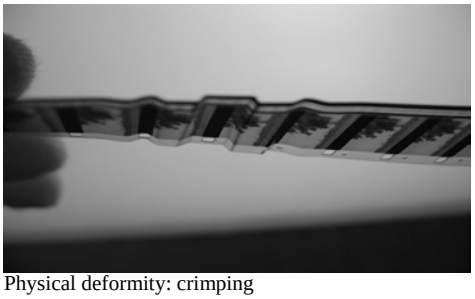
Film gauges range from 5mm to 105mm. NARA primarily deals with 8mm, Super 8mm, 16mm, 35mm, 35/32mm, and 70mm.



A film with late-stage vinegar syndrome



A multi-frame tear that has been repaired with tape



Physical deformity: crimping