

Videotape Information

Various sizes developed over the years starting with 2” Quad tapes. There have been almost 70 formats developed analog and digital. All but about 8 are no longer supported by the manufacturers and are obsolete. This is the primary problem with tape-based formats; they all become obsolete in a very short period of time leaving all the content on a difficult to recover media.

Videotape is composed of a backcoat, basefilm, Magnetic Coating, and a Binder. The backcoat is a thin carbon-black coating on the tape designed to protect tape during shuttling against electrostatic charges. Basefilm is a polyester substrate or carrier composed of either polyester terephthalate (PET) or polyethylene naphthalate (PEN) depending on the tape. It is the backbone of the tape. The magnetic coating consists of a complex mix of magnetic particles, binder, lubricant, head cleaning agent, surfactant, and other special chemicals. This is the layer that holds the data. The binder is added to the magnetic coating mixture to adhere magnetic particles to the base film

Common Types of Damage

Mechanical Damage

Causes - various

- Mishandling
- Misaligned tape machine
- Play through tape machine over time
- Tape passing through worn or misaligned rollers
- Poor pack on from rewind
- Poor shipping (improper packing, rough handling, exposure to elements)

Mold, Mildew, and Fungus

Causes - storage under humid conditions

- Organisms start from the outside edge and cause damage to the emulsion layer
- Once the organisms have eaten the emulsion layer the damage is irreversible

Sticky Shed Syndrome

Cause – hydrolysis (absorption of moisture from the atmosphere)

- High temperature and relative humidity can change the molecular structure on the binder surface
- Results in playback machine head clogs
- Tape must be dried out properly

Edge Damage or Warped Tape

Cause – tape is stretched or deformed in some way

- Certain tracks especially near the edges are susceptible to damage
- Also caused by poor storage conditions, heat and cold

Wear

Cause – playback, use of the videotape

- Each time a tape is played it rubs against the playback machine rollers machine heads; material is abraded causing holes in the oxide.
- The binder on the magnetic coat begins to weaken especially on older tape
- Results in increased dropouts, missing information and high frequency noise