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## Freezing Acetate Base Magnetic Tapes

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# One Story

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## January 2003

The starting point:

- collection of 2000 reels
- 16 mm sepmag
- very strong vinegar syndrome
- no money for immediate nor imminent duplication

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## April 2003

Two main decisions:

1. freezing with CMI package
2. establishing a reference subset:
  - 20 reels randomly selected (ca. 1% of the collection)
  - transfer onto new 16 mm polyester stock

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## May 2007

A feasibility test:

- de-freezing of the reference subset
- transfer a second time onto new 16 mm polyester stock
- compare with the first transfer made in April 2003
- no noticeable changes could be found

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## April 2008

Set-up of an effective workflow:

- treatment of 200 reels (ca. 10% of the collection)
- to check if the method fits with a huge number of reels
- to determine the exact costs

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## Autumn 2008

Treatment of the whole collection:

- weekly batches of 200 reels on average
- ca. 3 months needed

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# Freezing

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## Why Freeze?

Two strategies:

- an ordinary preservation practice
- an exceptional measure

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## Ordinary Preservation

- All the items of the collection are frozen (often after digitalisation for access purposes).
- All the preservation elements are frozen, but not the access copies.

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## Exceptional Measure

Which elements are chosen?

- essential for the archive
- in extremely bad condition
- impossible to duplicate or to restore immediately
- in case of catastrophe

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## How To Control RH?

- HR maintained by macro-environnement  
→ air-conditioning of the vault
- HR maintained by micro-environnement  
→ FICA method (Film Conditioning Apparatus)  
→ CMI method (Critical Moisture Indicator)

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## Preparing

- cleaning
- «archival rewinding»
- core
- vented can
- conditioning
- CMI package

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## Storing

- pack the reels
- put the packages onto pallets
- store the pallets into an industrial freezer

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	<b>open</b>	<b>FICA</b>	<b>CMI</b>
<b>?</b>	RH control staging room	machine bags	bags desiccant indicators
<b>+</b>	simplicity	experience use disaster	verification use disaster
<b>-</b>	energy organisation personnel	personnel organisation material	personnel organisation material

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## De-freezing

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### Step-by-Step Removal

1. cold storage
2. equilibration
  - staging room
  - packaging
3. work space

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### How Long?

- T and RH in the work space
- critical dew point
  - staging room
  - moisture-resistant bag
- minimum warm-up time

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## Workflow

1. temperature equilibration: **1 day** in the sealed package
2. moisture equilibration:
  - **2 days** for photographic film
  - **2 weeks** for 16 mm and 17.5 mm sepomag
  - **2 months** for 35 mm sepomagafter removing the sealed package

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## Low Ressource?

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## Benefits of Package

time to find an affordable solution

less energy consumption

- air-conditioning

better protection against catastrophe

- power fail
- flood

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## Conclusions

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## Conclusions

- Freezing acetate base magnetic tape is an extreme conservation method, that needs to be achieved carefully.
- This solution is effective for reels with strong vinegar syndrome, as a temporarily measure to gain time, in order to find grants.
- The preservation of the information is achieved by duplication on new polyester stock.

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## References

Image Permanence Institute, Rochester NY

[www.imagepermanenceinstitute.org](http://www.imagepermanenceinstitute.org)

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