

Potpourri

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The casserole contents

- set priorities
- relative humidity, what is that?
- edge codes
- establish and implement a strategy
- imagine and try innovative solutions
- freezing by using the CMI package
- open source software

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Priority

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	quick	longtime
important		
not important		

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Relative Humidity

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Warming...



22 °C
80% RH



30 °C
50% RH

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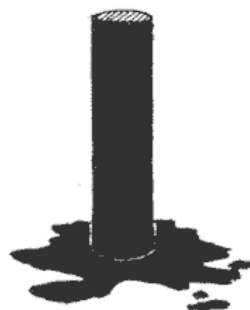
Cooling...



22 °C
80% RH



19 °C
100% RH



10 °C
100% RH

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Strategy

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Bibliography

Peter Z. Adelstein: **IPI Media Storage Quick Reference**. 2nd Edition. Image Permanence Institute, Rochester NY 2009

www.imagepermanenceinstitute.org

Dew Point Calculator. Image Permanence Institute, Rochester NY [2008]

www.dpcalc.org

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Develop a strategy

1. list the ISO standard for each media type which is present in the collection
2. assess the environment inside each vault at least for one year
3. inspect the condition of the collection
4. analyse the results and find the weak link
5. improve the conservation

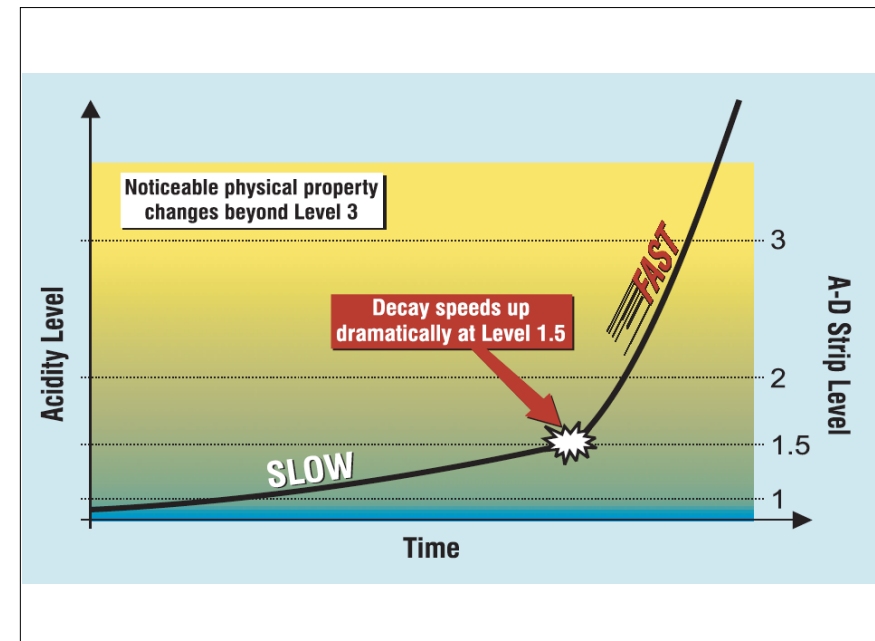
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Principle

In order to guarantee the conservation, one must know both the **condition** of the each media type **and** the **climate** in each storage vault:

- condition of the collection
- temperature and relative humidity

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Statistical method

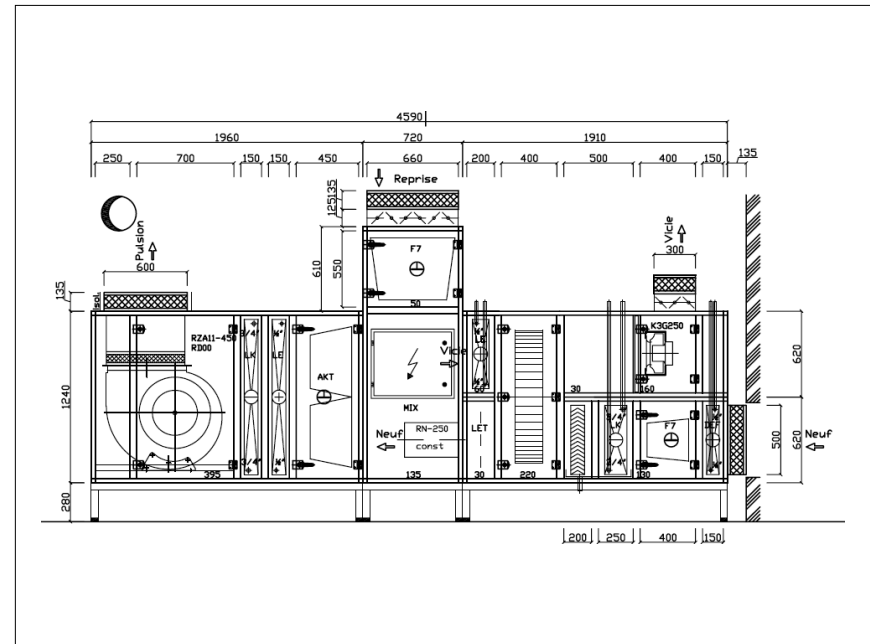
The analyse of a randomly chosen subset of

164 items

of each type of material and in each storage vaults informs about the full collection with the precision of

80% ± 5%

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Active measures

Air conditioning system:

- refrigerate
- dehumidify
- filter

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Air pollutant

- $\text{SO}_2 < 1 \mu\text{g}/\text{m}^3$
- $\text{NO}_x < 5 \mu\text{g}/\text{m}^3$
- $\text{O}_3 < 25 \mu\text{g}/\text{m}^3$

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Outgassed acid

- $\text{CH}_3\text{COOH} < 1 \text{ ppm}$
- $\text{HNO}_3 < 1 \text{ ppm}$

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Air flow

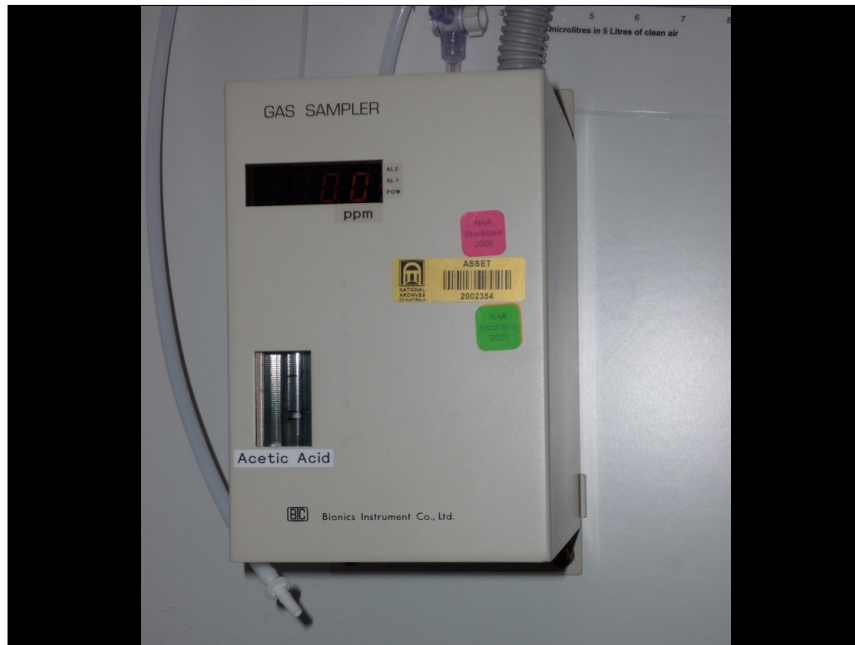
Outgassed acetic acid or nitric acid are heavy gases:

- air supply at the ceiling of one wall
- air exhaust at the bottom of the opposite wall
- air supply and air exhaust on the full length of the opposite longer walls

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Passive measures

- location
- orientation
- exterior paint colour
- shadow
- insulation
- humidity barrier
- apertures

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Freezing

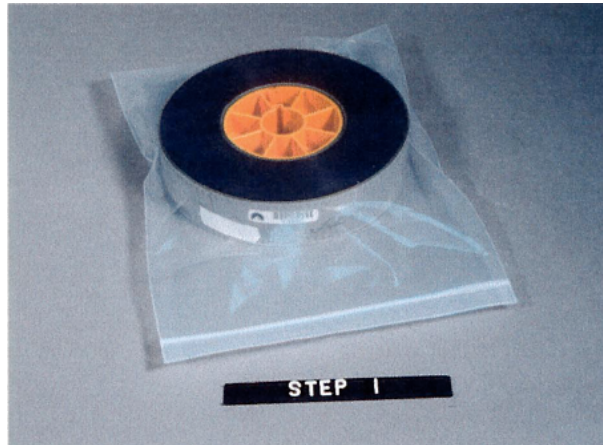
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Relative Humidity Control

- macroclimate
 - HVAC
- microclimate
 - FICA method
(Film Conditioning Apparatus)
 - CMI method
(Critical Moisture Indicator)

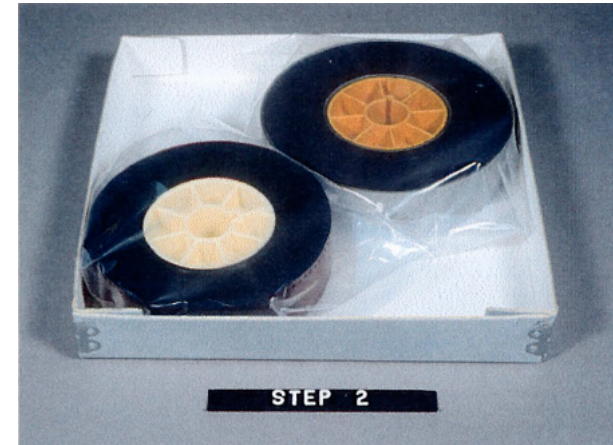
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Put the reel into a first bag



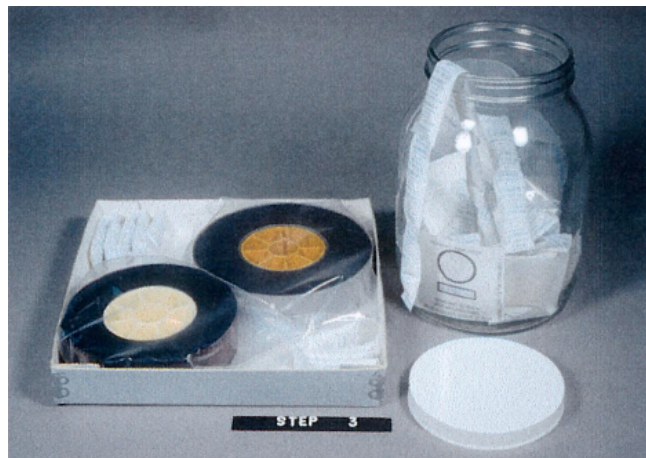
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Put the bag in a box...



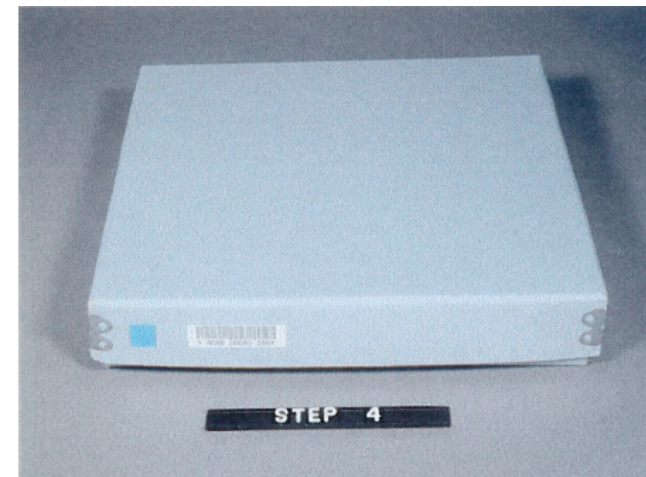
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... and add some silica gel



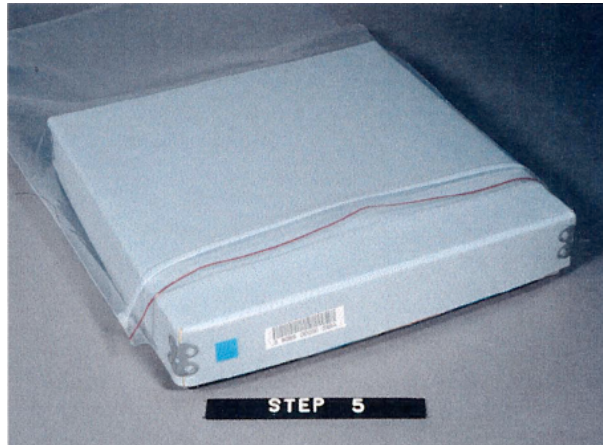
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Add a moisture indicator



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Put the box into a second bag



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Put the package into the freezer



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	open	FICA	CMI
?	HVAC staging room	machine bags	RH indicator desiccant bags
+	simplicity	experience access protection	monitoring access protection
-	energy organisation personnel	personnel organisation material	personnel organisation material

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Open Source

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File Transformations

FFmpeg (ffmpeg)

→ ffmpeg.org

Cookbook for Archivists

→ avpres.net/FFmpeg/

→ amiaopensource.github.io/ffmprovisr/

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Quality Control

QCTools (GUI), **qcli** (CLI)

→ bavc.org/preserve-media/preservation-tools

QCTools Documentation

→ bavc.github.io/qctools/

AV Artifact Atlas

→ bavc.github.io/avaa/

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Technical-Metadata Extraction

MediaInfo (GUI, CLI)

→ mediaarea.net/MediaInfo

FFmpeg (ffprobe)

→ ffmpeg.org

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Sound-Track Extraction

AEO-Light

→ usc-imi.github.io/aeo-light/

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Player

mpv

→ mpv.io

VLC

→ www.videolan.org/vlc/

FFmpeg (ffplay)

→ ffmpeg.org

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DCP Encoder

DCP-o-matic

→ dcpomatic.com/

OpenDCP

→ www.opendcp.org/

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AMIA Open Source

vrecord

→ github.com/amiaopensource/vrecord

audiorecorder

→ github.com/amiaopensource/audiorecorder

LTOpers

→ github.com/amiaopensource/ltopers

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