

AES Information document for Preservation of audio recordings - Extended term storage environment for multiple media archives

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Abstract

This information document provides guidelines for archivists faced with storing a variety of audio, still image and moving image media in a single storage environment. This circumstance is faced by many archivists in small and medium size archives that must preserve and make available the wide variety of media from nitrate film to optical discs. These guidelines provide recommendations to harmonize storage recommendations contained in standards and recommended practices published by the AES and the International Standards Organization (ISO).

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Foreword

This foreword is not part of AES-11id-2006 *AES Information document for Preservation of audio recordings - Extended term storage environment for multiple media archives*.

This information document seeks to harmonize storage recommendations for audio media when multiple types of media are stored together in the same environment such as may occur in archives unable to provide separate storage environments for each type of media. Storage recommendations for media magnetic tape, digital discs, color and black and white photographic prints and other media for which AES and ISO standards and recommended practices exist are included. Topics covered include temperature range, temperature cycling, relative humidity range, relative humidity cycling, and environmental conditions for mixed media archives.

This information document was prepared by a Joint Technical Commission of the Audio Engineering Society Standards Committee SC-03-04 Subcommittee on Preservation and Restoration of Audio and the International Imaging Industry Association Technical Committee IT-9 Image Permanence (I3A). Members of both SC-03-04 and I3A participated in the development of this information document. At the time of completion the commission was co-chaired by P. Adelstein and T. Sheldon.

NOTE: In AES standards documents, sentences containing the word "shall" are requirements for compliance with the document. Sentences containing the verb "should" are strong suggestions (recommendations). Sentences giving permission use the verb "may". Sentences expressing a possibility use the verb "can".

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Introduction

Over the years, technical committees TC36 and TC42 of the International Standards Organization have published ISO storage standards specific to individual materials. Many of these temperature/RH recommendations are based on laboratory studies using Arrhenius type projections that allow extrapolation of high temperature incubation tests to recommended storage environments at reduced temperatures. This also allows a prediction of the life expectancy of materials. This approach and the resulting analysis are logical when each medium is considered by itself. The individual ISO storage standards are sound and the predicted life expectancies have been consistent with practical experience. However, the storage conditions can differ widely for various media and reflect differences in their inherent stability. The extended-term storage conditions recommended in the various standards provide wide humidity ranges and set only a maximum temperature limit with considerable overlap in allowed environmental conditions across several media types.

In the real world, archivists and curators frequently are faced with the task of storing many types of material, such as film, prints, tapes, etc. Archives often contain media that cannot be separated without destroying the integrity of the collection. In other archives, one collection may consist primarily of one medium, but there are many collections each with different media. In either situation it may not be practical or realistic for the archivist to provide a number of different storage environments that are optimized for each material. The cost and inconvenience would be prohibitive; moreover, records of the same or similar subject matter are usually stored in close proximity to facilitate reference, not by the type of medium. The archivist of a multiple media collection may be forced to limit the number of storage environments that can be provided. In some cases this means slight deviation from the ISO storage recommendations and may compromise the life expectancies specified in the standards. This compromise may be based on the value, physical size, quantity, or legal requirements to maximize life expectancy of some collections relative to others.

This information document provides recommendations for four storage environments that will still provide excellent keeping qualities. As such, it is most useful for storage facilities which house different types of materials, but does not override the ISO recommendations for single medium collections.

The storage of traditional paper collections is not within the scope of this information document. However, many archives containing mixed recording media also include such collections. Archivists are encouraged to review the appropriate standards (see [1] and [2] in annex B) for those materials. Nitrate base photographic films are also included in this standard since they are often stored together with other materials in spite of the fact that nitrate films represent a fire hazard and they should be stored in accordance with the National Fire Protection Association standard [3]. Moreover fumes from decomposing nitrate film and acetate base film can have very detrimental effects on other materials stored in the same area.

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This information document does not discuss the various strategies to upgrade substandard environments that deviate from those recommended by ISO standards. However, institutions with substandard environments and restricted budgets should plan for the improvement of these environments as resources allow by judicious use of air conditioning, dehumidifiers (or humidifiers), air circulation and filtration. Although practicalities may force compromises, any improvement in poor conditions will add to the longevity of materials even if they do not attain the life expectancies possible with the environments recommended in the ISO standards. A discussion of basic air conditioning principles, the various options and the associated costs are outside the scope of this document. There are many references on this subject.

1 Scope

This information document provides suggested guidelines for four extended-term storage environments for archives that contain a variety of recording media, based on the corresponding ISO storage standards for those media. Whenever possible, the storage environments in the ISO storage standards should be followed. This technical report does not replace these ISO storage standards. In addition to environment recommendations, those standards also include other vital information pertinent for the long-term keeping of recording materials such as inspection, housing, and handling guidelines.

2 Normative references

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this information document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this information document are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

ISO 10356, *Cinematography - Storage handling of nitrate-base motion-picture films*. International Standards Organisation, Geneva, Switzerland (<http://www.iso.ch>)

ISO 18911, *Imaging materials - Processed safety photographic films - Storage practices*. International Standards Organisation, Geneva, Switzerland (<http://www.iso.ch>)

ISO 18918, *Imaging materials - Processed photographic plates - Storage practices*. International Standards Organisation, Geneva, Switzerland (<http://www.iso.ch>)

ISO 18920, *Imaging materials - Processed photographic reflection prints - Storage practices*. International Standards Organisation, Geneva, Switzerland (<http://www.iso.ch>)

ISO 18923, *Imaging materials - Polyester-base magnetic tape - Storage practices*. International Standards Organisation, Geneva, Switzerland (<http://www.iso.ch>)

ISO 18925, *Imaging materials - Optical disc media - Storage practices*. International Standards Organisation, Geneva, Switzerland (<http://www.iso.ch>)