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## FILM CONTAINER SPECIFICATIONS

In order to ensure proper long-term storage of archival motion picture films preserved by archivists and institutions, film containers (and cores as indicated) must comply with the following specifications:

1. Containers and cores must be composed of inert polypropylene; no addition or substitution will be accepted\*. Containers and cores cannot contain plastics that might give off reactive or volatile fumes or exudations during storage, including but not limited to peroxides, chlorines, styrene or residual solvents.\*
2. Must be in a vented configuration that allows for air circulation from container to surrounding environment.\*
3. The container must not utilize any venting or stacking/nesting features that can cause deformation to the film roll.
4. Must be composed of material that offers resistance to deformation when submitted to gravity load associated with long-term storage of heavy film rolls.
5. The container's design must not render the film vulnerable to water damage in the event of a sprinkler system discharge.

*\*Specifications followed by an asterisk are based on ANSI and SMPTE standards.*

## OTHERS SPECIFICATIONS

Although compliance with the following specifications is not mandatory, products that would be in accordance would be considered superior and at the leading edge in current trends in the long-term preservation of motion picture film.

- The container's venting configuration with large openings of the chimneys should allow for air circulation around the entire film roll.
- The films container (any format) must interlock with other cans in a stack to prevent sliding/slipping while carried in any sizes available.
- Client's logo must be embossed into the container.
- The inside bottom of the container should be designed so that the film roll uniformly off gases from all sides while still being evenly supported.
- If there is a support system on the inside of the bottom container, it should not cause indentations/damage to the film roll.

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### WHAT MAKES A GOOD FILM CONTAINER?

Film containers—boxes or cans—should be convenient to use and should protect the film from dust and physical damage. As the physical unit for organizing collections, containers should also provide a rigid surface for shelving and give some measure of fire and water protection. Some also give additional protection in shipping.

Manufacturers make film containers from archival cardboard, plastic, and metal. The ISO publishes standards for enclosures for photographic materials. These recommend that plastic cans be made of polypropylene or polyethylene. Cardboard boxes should be either neutral or buffered and composed of lignin-free materials. Cans, made of non-corroding metal, and are also acceptable. Also, containers should not include glues or additives that might have a chemical reaction with the film, as measured by IPI's Photographic Activity Test<sup>1</sup>.

The cans or boxes you choose will depend on your institution's storage conditions and funding. Whatever type you select, make sure that the container is chemically inert, physically stable, and expected to last as long as the film it houses. The enclosure's size should match that of the film. Always stack containers horizontally so that the film lies flat.

When reusing old cans, make sure that they are completely free of rust, dirt, and structural damage. Any metal can showing signs of rust or breaks in its coating should be discarded.

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<sup>1</sup> The potential for interaction between photographic materials and their enclosure is measured by the Photographic Activity Test, developed by IPI and accepted as a worldwide standard. The test determines if chemical ingredients in the enclosure will affect the photographic materials. For more information see [www.rit.edu/ipi](http://www.rit.edu/ipi)

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**THE CHOICE OF FILM-FRIENDLY CONTAINERS:**

The choice of containers requires a clear understanding of the life expectancy objectives, consideration of the macro-environmental (storage vault) conditions, the nature of film material, and whether the container will remain inert and stable during the lifetime of the film element stored inside it. All enclosures used must pass the Photographic Activity Test (PAT), described in ANSI Standard IT9.2.

The **tin-coated sheet iron metal** raw film stock can has almost universally been used to store film elements in laboratories, vaults and archives, including nitrate-base film materials. The film manufacturers packaged the raw film stock in them; **hence it was assumed that they were also suitable for storage purposes, which they are not.**

When archivists monitored their film collections, they noted that the interior of such cans would often start to rust before the outside! The explanation for this phenomenon is that the out gassing of acid **vapors emanating from actively degrading film caused such oxidation.** Dr. Karel Brems<sup>2</sup> of film manufacturer Agfa-Gevaert, Mortsel, in Belgium, stated:

*"Since the deterioration (of triacetate film) is catalyzed and auto-catalytic, one should try to prevent the reaction to reach the auto-catalytic point. This means that the released acetic acid should in no way accumulate in the film material. Therefore, we believe that the film material should not be stored in a tightly closed can or plastic bag, but in an open, well ventilated clean area. [...] **This means that using metal cans is a real risk factor in an archive**".*

Considering that nitrate film is also subject to out gassing, the same advice also applies to nitrate film storage.

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<sup>2</sup> Dr. Karel Brems, *Vinegar Syndrome Update-The Alternative: Polyester Film Base*, in Image Technology, March 1991, pp. 94-96.

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## COMPOSITION AND INFORMATION ON INGREDIENTS

The criteria for listing components in the composition section are as follows: carcinogens are listed when present at 0.1% or greater; components which are otherwise hazardous according to the Occupational Safety & Health Administration (OSHA / USA) are listed when present at 1.0% or greater; non-hazardous components are listed at 3.0% or greater. This is not intended to be complete compositional disclosure.

### Product and/or Component(s) Carcinogenic According to: OSHA IARC NTP OTHER NONE X

#### Composition:

#### Chemical Name CAS Number Exposure Limits Range in %

Propane, polymer with ethane 9010-79-1 > 99.0

Modifiers/additives CBI < 1.0

Particulates not otherwise regulated (PNOR) 15 (mg/m<sup>3</sup>) TWA-OSHA  
(TOTAL DUST)

5 (mg/m<sup>3</sup>) TWA-OSHA  
(RESPIRABLE FRACTION)

Particulates not otherwise classified (PNOC) 10 (mg/m<sup>3</sup>) TWA-ACGIH  
(INHALABLE PARTICULATE)

3 (mg/m<sup>3</sup>) TWA-ACGIH  
(RESPIRABLE PARTICULATE)

### This product is considered non-hazardous according to OSHA (1910.1200).

*The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication as part of STIL Casing Solution. It is not intended to constitute performance information concerning the product. No express warranty,*

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