

First Nations Media Australia Archiving Resources



Common types of archival PHOTOGRAPHIC MEDIA, their storage requirements and preservation risks

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¹ The level of risk is a general assessment only. Situations of poor storage conditions and photo damage all change the risk assessment for individual media or a range of media. The risk level given here is an estimate based on good storage, the quality of the photo's physical condition and the market availability of viewers.

Chromogenic Colour Print 1942-present

Acid-free (pH 7.2–9.5) enclosures and/or folders strongly advised. Each print should have its own enclosure to protect it from dust, handling damage, and changes in environmental conditions. This enclosure may be a paper (archival-quality, acid-free) or plastic (uncoated polyester, polyethylene, polypropylene, cellulose triacetate) sleeve, envelope, or wrapper. Position photo image material away from seams in paper enclosures. Seams should be on the sides of the enclosure, not down its centre. All storage materials should pass the Photographic Activity Test (PAT).



HIGH RISK OF LOSS

Description	Deterioration & Risk Level	Storage Environment	Storage orientation	Handling & Care
<p>A chromogenic colour print is a three-layer "full-colour" print comprised of a paper support with gelatin binder and an image made up of three dye layers: yellow, magenta, and cyan. If produced after 1968, the support is most likely resin-coated. Chromogenic prints often will be identifiable by the manufacturer's print on the back of the support paper (backprint) or by the stamp left by the photo-processor on the print's back. Information about the process, date, and materials used are usually included in these stamps. White borders will appear on fibre-based prints but were abandoned with resin-coated prints. Chromogenic prints are by far the most common type of colour photograph. They are typically found framed, mounted in albums, or loose.</p>	<p>Chromogenic colour prints are extremely sensitive to light and humidity, and they will exhibit some dye fading even if kept in dark, cold storage. Early chromogenic prints from before the 1980s are especially prone to coupler staining due to dye instability. Staining is a typical form of deterioration caused by light exposure and inherent coupler print-out; it is most apparent in highlights and borders. Yellow staining results from the fading or loss of magenta dye. Prints created before the 1980s may have reddish image discoloration as a result of the unstable cyan dye's severe thermal fading and poor storage in high temperatures.</p> <p>Due to media sensitivity this format should be considered at high preservation risk.</p>	<p>Temperature</p> <p>Ideal 2 degrees Celsius</p> <p>Humidity 30-40% relative humidity</p> <p>Light exposure should be limited. This is especially true of prints made before 1965.</p> <p>Wood cabinets should be avoided. Enamelled steel, stainless steel, or anodized aluminium are preferred.</p>	<p>Store vertically with dividers between each slide. May also be stored horizontally (flat). Roll film may remain rolled or may be segmented for more uniform, flat storage. Enclosures and folders may be stored in hanging files or archival storage boxes.</p>	<ul style="list-style-type: none"> • Have clean hands and wear non-scratching, microfiber or nitrile gloves. • Have a clean work area. • Do not mark photographs, even on the back side. • Do not use paper clips or other fasteners to mark or organise prints. • Do not use rubber bands, self-adhesive tape, and/or glue on photographic materials.

Silver Gelatin DOP Print (B&W Print) 1874-present

Acid-free (pH 7.2–9.5) enclosures and/or folders strongly advised. Each print should have its own enclosure to protect it from dust, handling damage, and changes in environmental conditions. This enclosure may be a paper (archival-quality, acid-free) or plastic (uncoated polyester, polyethylene, polypropylene, cellulose triacetate) sleeve, envelope, or wrapper. Position photo image material away from seams in paper enclosures. Seams should be on the sides of the enclosure, not down its centre. All storage materials should pass the Photographic Activity Test (PAT).



HIGH RISK OF LOSS

Description	Deterioration & Risk Level	Storage Environment	Storage orientation	Handling & Care
<p>A silver gelatin print is a three-layer print comprised of a paper support with a baryta or resin coating, a gelatin binder, and a silver image. Prints are made using a light-sensitive gelatin silver bromide or gelatin silver chloride paper, and a negative. The surface sheen may be matte, glossy, or specially textured. In most cases, no paper fibers are visible, obscured behind a thick baryta layer (fiber-based paper) or a behind a pigmented polyethylene layer (resin-coated paper. Resin-coated prints can be identified by their smooth, plasticised back side. The untuned print image will be neutral gray-black unless severely deteriorated. Many resin-coated prints, however, were toned. They typically appear within the range of brown or sepia, but yellowish and purplish tones are also common. Silver gelatin prints are typically found framed, mounted in albums, or loose.</p>	<p>Silver gelatin images often exhibit silver mirroring due to oxidation, causing the silver particles to rise to the top of the gelatin layer. This defect is typically more acute along the edges and in darker areas of the image. Image fading is first and most apparent in highlights. Discoloration (yellow-brown) and fading in highlights, at edges, or across the image are often symptoms of air pollution or poor storage materials. Resin-coated silver gelatin prints are exclusively susceptible to redox blemishing, which appear as small orange-yellow spots in the image. Fiber-based prints will have a tendency to curl, usually as a result of fluctuating humidity.</p> <p>Due to media sensitivity in hot and humid environments this format should be considered at high preservation risk.</p>	<p>Temperature Below 10 degrees Celsius.</p> <p>Humidity 30-40% relative humidity</p> <p>Light exposure should be limited.</p> <p>Wood cabinets should be avoided. Enamelled steel, stainless steel, or anodized aluminium are preferred</p>	<p>Store vertically with dividers between each slide. May also be stored horizontally (flat). Roll film may remain rolled or may be segmented for more uniform, flat storage. Enclosures and folders may be stored in hanging files or archival storage boxes.</p>	<ul style="list-style-type: none"> • Have clean hands and wear non-scratching, microfiber or nitrile gloves. • Have a clean work area. Do not mark photographs, even on the back side. • Do not use paper clips or other fasteners to mark or organise prints. • Do not use rubber bands, self-adhesive tape, and/or glue on photographic materials.

Chromogenic Colour Negative 1939 - present

Acid-free enclosures and/or folders strongly advised. Due to the inherent acidity of cellulose acetate, storage in a buffered alkaline enclosure is recommended. Each negative should have its own enclosure to protect it from dust, handling damage, and changes in environmental conditions. This enclosure may be a paper (conservation-quality, acid-free) or plastic (uncoated polyester, polyethylene, polypropylene, cellulose triacetate) sleeve, envelope, or wrapper. Position photo image material away from seams in paper enclosures. Such seams (if any) should be on the sides of the enclosure, not down its center. All storage materials should pass the Photographic Activity Test (PAT)

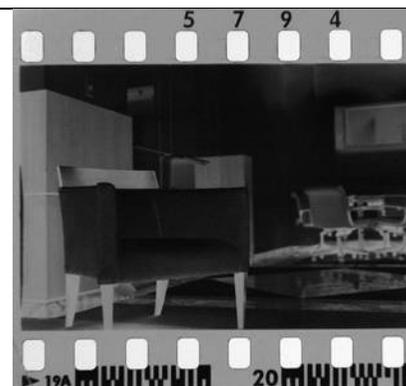


**LOW TO HIGH
RISK OF LOSS**

Description	Deterioration & Risk Level	Storage Environment	Storage orientation	Handling & Care
<p>Chromogenic process negative is a colour image consisting of three superimposed gelatin image layers on top of a plastic film support (acetate or polyester). From top to bottom, the gelatin layers are infused with yellow, magenta, and cyan dye images; the dye molecules are then synthesized during processing. Film produced after 1947 has a red-orange tint (masking). Acetate film may be identified by "SAFETY" edge markings or manufacturer notch codes. Polyester film is not usually marked but may bear "Estar" or "Cronar" edge markings.</p>	<p>Chromogenic negatives will fade, even in dark storage. Cold storage will slow the rate of deterioration. Much like chromogenic prints, negatives prior to the 1980s may discolour as a result of severe thermal fading of the cyan dye and poor storage in high temperatures. Unlike other processes, the progression of colour negative stability is linear as coupler staining and dye stability have gradually improved over time. Deterioration of the film support varies depending on the type of plastic used.</p> <p><i>Acetate:</i> Cellulose acetate film is susceptible to vinegar syndrome, which causes the film base to shrink and the gelatin emulsion to pull up in folds. A strong vinegar odour is a tell-tale symptom in later stages of deterioration. Acetate deterioration is accelerated by humid conditions.</p> <p><i>Polyester:</i> Polyester film is inert, considered archival, and has a life-expectancy of 500+ years under proper storage conditions.</p> <p>Due to media sensitivity acetate negatives are at high risk, and negatives on polyester are at low risk.</p>	<p>Temperature Ideal Below 10 degrees Celsius</p> <p>Humidity Ideal 30-40% relative humidity</p> <p>Colour transparencies should be protected from light exposure and stored in a cold, dark, dry environment. Colour transparencies will fade rapidly when exposed to light, but they will gradually fade even if kept in dark storage. The degree of fading will depend on brand, era, and the colorants used. Slides on acetate film are at a higher risk level than those on polyester.</p>	<p>Store vertically with dividers between each negative. May also be stored horizontally (flat). Roll film may remain rolled or may be segmented for more uniform, flat storage. Enclosures and folders may be stored in hanging files or archival storage boxes. Wood cabinets should be avoided. Wood cabinets should be avoided. Enamelled steel, stainless steel, or anodised aluminium are preferred.</p>	<ul style="list-style-type: none"> • Have clean hands and wear non-scratching, microfiber or nitrile gloves • Have a clean work area • Do not mark photographs, even on the back side • Do not use paper clips or other fasteners to mark or organise prints • Do not use rubber bands, self-adhesive tape, and/or glue on photographic materials.

**Silver Gelatin Negative (B&W). Acetate 1951 to present;
Polyester 1955 - present**

Acid-free enclosures and/or folders strongly advised. Due to the inherent acidity of cellulose acetate, storage in a buffered alkaline enclosure is recommended. Each negative should have its own enclosure to protect it from dust, handling damage, and changes in environmental conditions. This enclosure may be a paper (conservation-quality, acid-free) or plastic (uncoated polyester, polyethylene, polypropylene, cellulose triacetate) sleeve, envelope, or wrapper. Position photo image material away from seams in paper enclosures. Such seams (if any) should be on the sides of the enclosure, not down its centre. All storage materials should pass the Photographic Activity Test (PAT)



**LOW TO HIGH
RISK OF LOSS**

Description	Deterioration & Risk Level	Storage Environment	Storage orientation	Handling & Care
<p>A silver gelatin negative is a negative on a plastic film support made out of cellulose nitrate, cellulose acetate, or polyester. A gelatin and silver emulsion on the support's surface forms the image. Silver gelatin film is manufactured in standard camera formats and sold as either multiple-image rolls or single-image sheets. Acetate film may be identified by "SAFETY" edge markings or manufacturer notch nodes. Polyester film is not usually marked, but it may have "Estar" or "Cronar" edge markings.</p>	<p><i>Acetate:</i> Cellulose acetate film is susceptible to vinegar syndrome, which causes the film base to shrink and the gelatin emulsion to pull up in folds. A strong vinegar odour is a tell-tale symptom in later stages of deterioration. Acetate deterioration is accelerated by humid conditions.</p> <p><i>Polyester:</i> Polyester film is inert, considered archival, and has a life-expectancy of 500+ years under proper storage conditions.</p> <p>Due to media sensitivity acetate negatives are at high risk, and negatives on polyester are at low risk.</p>	<p>Temperature Ideal Below 10 degrees Celsius</p> <p>Humidity Ideal 20-40% relative humidity</p> <p>Wood cabinets should be avoided. Wood cabinets should be avoided. Enamelled steel, stainless steel, or anodised aluminium are preferred.</p>	<p>Store vertically with dividers between each negative. May also be stored horizontally (flat). Roll film may remain rolled or may be segmented for more uniform, flat storage. Enclosures and folders may be stored in hanging files or archival storage boxes.</p>	<ul style="list-style-type: none"> • Have clean hands and wear non-scratching, microfiber or nitrile gloves • Have a clean work area • Do not mark photographs, even on the back side • Do not use paper clips or other fasteners to mark or organise prints • Do not use rubber bands, self-adhesive tape, and/or glue on photographic materials.

Colour Film Slide 1935 - present

Acid-free enclosures and/or folders strongly advised. Due to the inherent acidity of cellulose acetate, storage in a buffered alkaline enclosure is recommended. Each negative should have its own enclosure to protect it from dust, handling damage, and changes in environmental conditions. This enclosure may be a paper (conservation-quality, acid-free) or plastic (uncoated polyester, polyethylene, polypropylene, cellulose triacetate) sleeve, envelope, or wrapper. Position photo image material away from seams in paper enclosures. Such seams (if any) should be on the sides of the enclosure, not down its centre. All storage materials should pass the Photographic Activity Test (PAT)



HIGH RISK OF LOSS

Description	Deterioration & Risk Level	Storage Environment	Storage orientation	Handling & Care
<p>A color slide or transparency is a saturated full-color positive image on a plastic film support composed of three layers of gelatin, each containing a dye image (yellow, magenta, cyan). Kodachrome is the most well-known chromogenic process. Color transparencies are often placed in cardboard or plastic mounts to protect them during handling and allow them to be used in slide projectors. The brand name (e.g. Kodak Kodachrome, Kodak Ektachrome, Agfa Agfacolor, Fujichrome) of the film is often printed on the border.</p>	<p>Dye fading or shifting will occur as a result of even slight light exposure. Fujichrome slide image dyes are more stable under light exposure than those of Kodachrome, which fade quickly when in the light but last considerably longer than Fujichrome in dark storage. Besides noticeable discoloration, the level of dye fading may also be assessed by observing the border under magnification. As this "black" border is in fact a composite of the color dyes, its edges will lighten/soften and shift towards magenta over time. Deterioration of the film support varies depending on the type of plastic: acetate or polyester.</p> <p>Acetate: Cellulose acetate film is susceptible to vinegar syndrome, which causes the film base to shrink and the gelatin emulsion to pull up in folds. A strong vinegar odour is a tell-tale symptom in later stages of deterioration. Acetate deterioration is accelerated by humid conditions.</p> <p>Polyester: Polyester film is inert, considered archival, and has a life-expectancy of 500+ years under proper storage conditions.</p> <p>Due to media sensitivity, this format should be considered at high preservation risk.</p>	<p>Temperature Ideal Below 10 degrees Celsius</p> <p>Humidity 20-30% relative humidity</p> <p>Wood cabinets should be avoided. Enamelled steel, stainless steel, or anodised aluminium are preferred</p>	<p>Store vertically with dividers between each slide. May also be stored horizontally (flat). Enclosures and folders may be stored in hanging files or archival storage boxes..</p>	<p>Kodachrome transparencies should not be projected due to their poor light stability and aversion to intense heat..</p> <ul style="list-style-type: none"> •Have clean hands and wear non-scratching, microfiber or nitrile gloves •Have a clean work area •Do not mark photographs, even on the back side •Do not use paper clips or other fasteners to mark or organise prints •Do not use rubber bands, self-adhesive tape, and/or glue on photographic materials.

<p>Black & White Film Slide 1930 – around 1970</p> <p>Acid-free enclosures and/or folders strongly advised. Due to the inherent acidity of cellulose acetate, storage in a buffered alkaline enclosure is recommended. Each negative should have its own enclosure to protect it from dust, handling damage, and changes in environmental conditions. This enclosure may be a paper (conservation-quality, acid-free) or plastic (uncoated polyester, polyethylene, polypropylene, cellulose triacetate) sleeve, envelope, or wrapper. Position photo image material away from seams in paper enclosures. Such seams (if any) should be on the sides of the enclosure, not down its centre. All storage materials should pass the Photographic Activity Test (PAT)</p>			<p>HIGH TO LOW RISK OF LOSS</p>	
Description	Deterioration & Risk Level	Storage Environment	Storage orientation	Handling & Care
<p>A black-and-white slide or transparency on film is created through a gelatin silver bromide process on a plastic (nitrate, acetate, or polyester) film base. This positive transparency has the same structural qualities as a silver gelatin negative on film. Monochrome slides and transparencies are relatively rare. Individual slides are placed in plastic, metal, or cardboard mounts in order to protect them and allow them to be used in a slide projector..</p>	<p>Silver mirroring is a common form of deterioration rising from oxidation of the silver image material in monochrome transparencies. Deterioration of the film support corresponds to that of gelatin silver film negatives, depending on the plastic.</p> <p>Nitrate: Cellulose nitrate film deterioration is exacerbated by low and high relative humidity in the environment. In a humid environment, the emulsion may soften and become sticky. In an extremely dry environment the film becomes brittle. In the final stage of deterioration, nitrate film forms a solid mass than cannot be separated or handled safely. Nitrate film deterioration can be identified by the acrid, sharp odour as nitric and nitrous acids are released. These acidic vapours are damaging to surrounding objects, so deteriorating film must be evaluated to determine whether it should be discarded.</p> <p>Acetate: Cellulose acetate film is susceptible to vinegar syndrome, which causes the film base to shrink and the gelatin emulsion to pull up in folds. A strong vinegar odor is a telltale symptom in later stages of</p>	<p>Temperature Ideal Below 10 degrees Celsius</p> <p>Humidity 20-30% relative humidity</p> <p>Wood cabinets should be avoided. Enamelled steel, stainless steel, or anodised aluminium are</p>	<p>Store vertically with dividers between each slide. May also be stored horizontally (flat). Enclosures and folders may be stored in hanging files or archival storage boxes. preferred.</p>	<ul style="list-style-type: none"> •Have clean hands and wear non-scratching, microfiber or nitrile gloves •Have a clean work area •Do not mark photographs, even on the back side •Do not use paper clips or other fasteners to mark or organise prints •Do not use rubber bands, self-adhesive tape, and/or glue on photographic materials.

	<p>deterioration. Acetate deterioration is accelerated by humid conditions.</p> <p>Polyester: Polyester film is inert, considered archival and has a life-expectancy of 500+ years under proper storage conditions.</p> <p>Due to media sensitivity nitrate slides should be considered at high preservation risk. Slides on acetate are at moderate risk, and slides on polyester are at low risk.</p>			
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