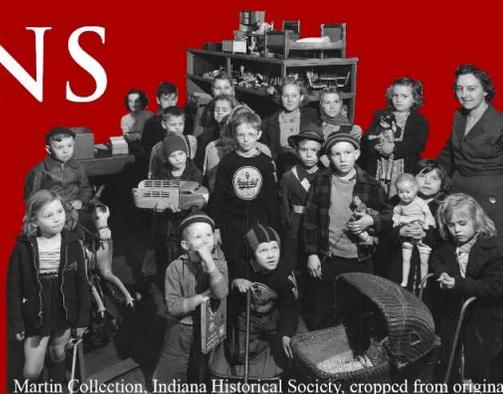


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COLLECTIONS

Advisor



Martin Collection, Indiana Historical Society, cropped from original

Issue 17, March 2013

Plastic – Part of American Life for More Than 150 Years

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Is the doll sticking to her clothes? Is a model aircraft's white wing discolored from the glue? Do the 16 mm films smell a bit like vinegar? Each object is the result of a complex chemical process that was mass-produced for use in everyday life. The drive to manufacture commodities cheaper and faster led to a great variety of plastic recipes. For the caretaker of 20th-century materials, identifying the type of plastic is often the first hurdle to preserving and displaying them.

Plastic predecessors appeared as early as the mid-1800s, utilizing animal horn and hoof mixtures with other materials to shape and mold products in quantity. Ambrotype and daguerreotype photograph cases and vulcanite bracelets are two such examples. From these natural composites to today's synthetic petroleum-based ones, plastics are complex compositions made with a multitude of additives and are shaped with different techniques.

What to do when working with plastic objects:

- Wear latex or nitrile gloves and work in a well-ventilated space.
- Mark objects with soft pencil or tag (See Labeling Objects in *Collections Advisor*, Issue 11, August 2012, www.indianahistory.org/hha.)
- Check objects periodically for changes in condition. If deterioration is detected, isolate the object from rest of the collection.
- Clean by wiping, brushing or vacuuming objects. Do not use solvents for wet cleaning or to remove tacky residue. Microfiber cloths are ideal.
- Store in dark, cool, dry and ventilated places. Don't isolate the object inside an airtight container to 'cook' in its own vapor.



Rain boot and pouch (early 20th century): the boot is stuffed with batting and soft Tyvek to maintain boot's form and prevent it from sticking to itself. The pouch has significantly degraded and is sticking to Tyvek sheet underneath and inside the bag.



Barbie (1961-1962) with bubble-cut hair: the doll's pearl earrings have been removed due to metal corrosion and staining.

- Allow objects to have space around each one.
- Use inert materials such as acid-free unbuffered tissue and boxes, acrylic stands, Mylar, Ethafoam and Tyvek to support, store and display objects.
- Display the object out of direct sunlight, ideally display the object in UV-filtered light.

What deterioration looks like:

- Discoloration, fading and complete change of color in the object.
- Detectable odor like vinegar or mothballs.
- Surface changes including tackiness, haze or white powder on the surface called bloom.
- Cracking, crazing (a network of fine lines on the surface of the object), brittleness or physical distortion of the object.
- Corrosion from contact with metal in or around the object.

Expected and unexpected plastics in collections:

- Toys
- Packaging and storage containers
- Textiles and accessories
- Film and photography
- Architecture drawings

Storage Ideas:

- Sticky dolls or action figures: Store naked and separate the already deteriorating ones from the stable ones.
- Mint in package: Consider opening package or removing toy to encourage air circulation. When doing this, remove batteries, which will corrode.
- Can't store a plastic raincoat or playset fully extended? Interleaf to separate printed sides from sticking to one another.

The Bottom Line:

Plastic objects are susceptible to damage and deterioration as all objects are. Proper care will prolong the life of the object, however, once deterioration begins, the damage is generally irreversible.

Resources



Chess pieces (1940s): the black knight has cracked to dust while the white knight from the same set remains undamaged.



Ken in own storage box (1963-1964): the doll's surface is tacky and sticky from the flesh-colored and softer plastic while the harder and lighter plastic of the torso remains stable.

Care of Plastics: Malignant plastics

R. Scott Williams

January 2002 Volume 24 Number 1

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National Park Service

September 2010 Number 8/4

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Plastics Historical Society

<http://www.plastiquarian.com>

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This publication from the Indiana Historical Society is a service of the Hoosier Heritage Alliance



This project is made possible by a grant from the U.S. Institute of Museum and Library Services