

# Is it Celluloid or is it Bakelite?

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As you wander around those antique shops have you seen the beaded necklaces that look like plastic or may be ivory? So what is the material used during the Model A era to make jewelry? Not everyone could afford to wear gemstones or even rhinestone necklaces and bracelets. See Lynette Marcione's article, "Wrist Bling" in the May/June 2017 *Restorer* magazine. Curiosity turned into an interesting review of the plastic materials used to make jewelry and other items in the Model A era.

The first man-made plastic material, Parkesine, was formulated in 1865 by an Englishman, Alexander Parkes. Parkesine was a combination of collodion, camphor, and vegetable oil which could be rolled into sheets and adhered to cloth, making the resulting material waterproof. However, Parkesine proved to be brittle, and its key ingredient, collodion, was highly flammable. By 1868, Parkesine was no longer used due to safety concerns.

About the same time, an American inventor John Hyatt was trying to create a plastic. Hyatt's motivation came in response to a contest sponsored by Phelan & Collander, a billiard ball manufacturer. A \$10,000 prize had been promised to anyone who could come up with a substitute for ivory, which even in the 19th century was a dwindling resource. Hyatt did not win the prize, but in the course of trying to produce the ball, he noticed the combination of camphor and nitrocellulose became plasticized.

Celluloid never caught on in billiard parlors as the balls would explode in combustion upon striking each other. Celluloid film strips also caused many fires in the early hot projection rooms of the movie theaters.

During the Art Deco era it became a popular material for craftsmen and artists. Celluloid was widely used for a variety of items including jewelry, due to its versatility. It was shaped, etched, and molded.

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Combs were made to resemble tortoise shell,



necklaces resembled ivory,



buttons could be made into interesting shapes,

brooches took on 3 dimensional artistic designs



and vanity sets became accessible

Celluloid was often called the “French Ivory” as it had the look and feel of ivory, but was readily available and cheaper. Everyone had access to items that looked expensive. Pigments were added to produce interesting colors; and it could be molded or shaped to increase its versatility.

Although Celluloid is brittle, *it weighs less* and can be formed into *thinner* pieces than other plastics such as Bakelite.

Celluloid proves to be unstable in confined spaces such as plastic bags or tightly closed storage boxes; it can be damaged by temperature extremes, chemicals, and is flammable. Cracking, flacking, and decomposing occurs giving rise to a condition called “Celluloid rot”. Storing several Celluloid pieces together could result in the “rot” creeping from one piece to the other. One never imagines that a beautiful Model A era Celluloid brooch would have a “contagious disease” and could ignite if too close to a candle flame!



To identify an item as Celluloid, run hot water over it for several seconds. Most Celluloid pieces will have a vinegar or old camphor odor. Caution is suggested when a piece has rhinestones, as water may damage the silver film on the underside of the stone further degrading the item.

In 1907 Leo Baekeland created the first fully synthetic plastic, Bakelite. This new product was a flexible material which could be decorated through molds, carvings, inlays, lamination, etc., and it could be made in most any color. Over time white Bakelite can change color, turning more to a cream color. An exposed area can darken and acquire scratches, and a type of patina forms on the surface. It can be opaque, translucent, or transparent which expanded its use in costume jewelry. A big selling point for Bakelite was that it was less flammable than Celluloid.



Bakelite will leave a yellow color on a soft clean cloth when rubbed on the underside of the item. Bakelite will emit a smell like formaldehyde when placed under hot water. Bakelite is a sturdy material and is heavier than Celluloid.

## Five Methods to Identify Jewelry from the Model A era As Celluloid or Bakelite

### **# 1 Sound**

Gently tap two bracelets that you believe are Bakelite together; they will have a “clinking” sound.

Celluloid will have a softer sound; it is not recommended that you tap Celluloid items together because it is more fragile and may crack



### **#2 Weight**



Bakelite Bracelet

Bakelite is denser and heavier than Celluloid. Hold two pieces of jewelry in your hands and compare the weight.



Celluloid Bracelet

### **3# Smell**

Celluloid will have a vinegar or old camphor odor when under warm water.

Bakelite will have the smell of formaldehyde when under hot water

### **#4 Simichrome polish**

Simichrome Polish is a non-abrasive cream that can be purchased in hardware stores. You can also use it to test Bakelite for authenticity, and this is the preferred method for many plastic lovers (although others prefer the hot water test mentioned above).

To test with Simichrome, sparingly apply to a soft cloth and gently rub a small spot on the inside or back of the item being tested. If it's Bakelite, the cloth should turn yellow with ease (although the color may vary from light to dark). If a piece is lacquered, it may test negative. Black Bakelite pieces often fail this test as well. Use the other tests above, especially the hot water test, to confirm authenticity if a piece you suspect to be Bakelite fails with Simichrome.

## #5 Sight- Formula 409 test

Dampen a tip of a cotton swab with Formula 409, a household cleaner. Rub the inside of the item being tested, if the swab turns yellow, the item is Bakelite. If the item is black Bakelite or lacquered, this test will be negative. Use one or several of the other tests to confirm your item as Bakelite.



## References

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