

History of Materials

The earliest Billiard Balls were created using wood and clay (although clay remained in use until even the 20th century).
The original affordable balls were made of Ox bones, and although they were in common use in Europe, Elephant Ivory was favoured until the early 20th century.
Eventually, John Wesley Hyatt created Nitrocellulose, an early plastic. More soon followed.
Now, we have lots more modern materials, which are strongly resistant to cracking and chipping.

From Ivory

The earliest known reference to Ivory Billiard Balls is in the 1588 inventory of the Duke of Norfolk. Dyed and numbered versions first appeared around the early 1770s.
Unfortunately, no more than 8 billiard balls can be made per one elephant's tusks. This means that at least two elephants would have needed to die per set, leading to a large poaching problem with elephants becoming endangered.
There were Ivory substitutes like the earlier mentioned Ox bone, Clay and Wood balls, as well as faux Ivory materials like Sorel Cement, but these weren't as popular.

BILLIARD BALLS



IVORY



CLAY



PLASTIC



WOODEN

Plastic

However, a New York supplier asked for an alternative for a \$10,000 prize, now worth over \$200,000.
Eventually, in 1869 John Wesley Hyatt invented a material called nitrocellulose, branded Celluloid in 1870, one of the very first plastics.
Soon after, other materials were developed to increase the longevity of the plastic, like Bakelite and Acrylic.
Nowadays, lots of plastics and resins are used, like [Saluc](<https://www.saluc.com/index.html>) who manufacture the famous [Aramith Billiard Balls](<https://www.aramith.com/>) which use Phenolic Resin.

Sustainability

Although plastic is now used, this is a far cry more sustainable than the Ivory balls of old which decimated elephant populations.
So far as I can tell, modern Billiard Balls cannot be easily recycled. However, people often see Billiard Balls as a low-order good, meaning that they are not bought very often, and they are used for a very long time.
This is a much better use for our limited oil supplies than single-use plastic water bottles which can be used multiple times, but are often discarded after a single use. Many people also forget to even send them to recycling. Then, even if items are sent to recycling, they are often exported (as shown by The BBC) to other countries (often very far away in South-East Asia) which creates a larger environmental impact.
The Times has also shown that plastic sent for recycling is often burnt for fuel.
Wood and clay balls were also often used, but were used much less commonly than ivory balls due to inferior quality. I believe that our modern balls represent a good middle ground between ivory and wood/clay - better for the environment, and still a good quality of ball.

To conclude, over their lifetimes, Billiard Balls have become more constant (good for competitions), easier to get a hold of and they're better now for the environment than they used to be.