

A New World of Synthetic Materials



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Abstract

A history of synthetic materials from 1869-1939.

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Since the late 19th century, plastics made of polymers formed from elements of carbon and hydrogen have transformed the world. The many varieties of these synthetic materials have revolutionized all aspects of human endeavor. Lightweight and strong, flexible and easily molded, these relatively cheap and often beautiful materials have helped transform agriculture and

industry, medicine and construction, household life and even war. Often affordable substitutes for costly natural materials—including balbecn, shell, and ivory from endangered species—plastics are novel substances that enable mass production of everyday items. Plastics also make possible high-tech devices that enable new human activity—think of space suits, deep sea

submersibles, and artificial joints that provide millions with relief and mobility. We live in an age of plastics that is wonderful but also worrying. Among the tens of millions of tons of plastics produced each year in the United States, a good deal end up in landfills, polluting land and waterways, and posing serious threats to wildlife.

1869



Celluloid
One of the first plastic materials, celluloid was easily shaped and used as a substitute for ivory in jewelry and billiard balls before finding wider application in consumer goods (combs, shirt collars) and film (photo and movie film stock).

1909



Bakelite
The first plastic made from synthetic compounds, this "thermosetting" material could be molded into rigid shapes of wide ranging colors and used as electrical insulators, household items, and fashionable jewelry.

1936



Fiberglass
Combining resin with glass fibers, this moldable, lightweight and high strength material was used in WWII aircraft and subsequently in all manner of products such as boats, cars, and even swimming pools. The 1953 Chevy Corvette contained a fiberglass body.

1860 1870 1880 1890 1900 1910 1920 1930 1940

1908



Cellophane
A European invention that initially represented luxury and glamour, these thin transparent sheets of plastic came to symbolize the democratization of mass consumption of cellophane wrapped foods and products of all sorts.



1933

Plexiglass
A trade name material made from acrylic, because this plastic can be made in clear sheets that resist weathering and erosion it was used for WWII aircraft windshields and thereafter in a wide range of consumer products.



1939

Nylon
Widely used today, this synthetic fiber was essential for war material during WWII but became best known for revolutionizing women's fashion as it promised a cheaper, stronger, and beautiful alternative to women's stockings made from fabrics of silk, cotton, and wool.

Plastics Injection Molding, 1977

