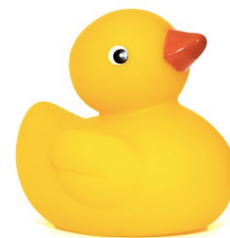




Plastics – A Marvel of Innovation

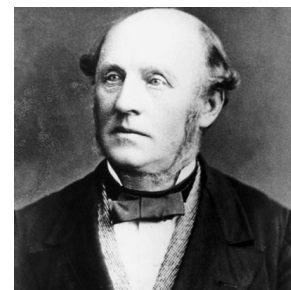
Plastics – A Marvel of Innovation

A plastic is defined as a synthetic material that is made from a broad range of organic polymers such as nylon and polyethylene that can be easily molded into different shapes. From the chemistry perspective, plastic is clearly defined as a material that can easily be reshaped or remolded just by applying pressure or heat. Most of the plastics that are available today are made using synthetic resins polymerization. The most common types of plastics include thermosets and thermoplastics (Whittenberger, 1987).



The history of plastics

Although the history of plastics is considered to be modern, its history dates back more than 100 years. This is because we have used “natural polymers” such as tortoise, amber, animal horns as well as shells for a century. These natural polymer materials had similar features as today’s plastics. They were also used similarly as today’s manufactured plastics (Shah, 1998). For instance, animal horns that turn pale yellow are transparent when heated and were sometimes used to replace glass.



Alexander Parkes

The first man-made plastic was unveiled in the year 1862 by Alexander Parkes at the Great International Exhibition in London. That man-made material was called celluloid since it was made from cellulose. The material could do anything that rubber could and in 1907, chemist Leo Hendrik Baekeland manufactured another plastic material and called it “Bakelite.” Unlike celluloid, once formed it could not be melted. The Bakelite could be used in the production of telephones and cameras due to its properties as a good electrical insulator (Poison.org, 2016).

The first substance of polyvinyl chloride (PVC – is one of the most widely used plastics in the world today with a demand of over 35 million tons per year) was formed in the year 1914. Later on in the same year, cellophane was manufactured. Immediately after the Second World War, other types of plastic that include polyester, polypropylene, polyurethane, and polycarbonate were manufactured. By then, the application of polystyrene, polymethyl methacrylate, and PVC were highly widespread. By the 1960s, plastic's usage was available to everyone due to its affordable price. Furthermore, due to technology advancements, there have been many developments in plastics since the 1970s (Poison.org, 2016).

How plastics are made

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The plastic controversy

A few years back there was a controversy surrounding the use of plastics in the food container industry when many children (and adults) were exposed to a harmful chemical. It was claimed that the chemical Bisphenol A (BPA), which was used to harden plastic, is harmful to human health. BPA has been associated with estrogen-like effects such as a change in neonatal/fetal prostate glands and also breast tissue development (Ellis & Crawshaw, 2008).



Environmental impact of plastics

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The future of plastics

Due to technological advancements, plastics are now being made from biodegradable, biological substances such as corn oil. This would mean the plastics could be broken down, reducing their accumulation (Craig Freudenrich, 2007). This practice needs to be developed and introduced into every industry in the future so that we may better manage our waste problem.

Reading Comprehension Questions:

1. What are plastics?
2. Provide
3. What are synthetic plastics made from?
4. How do
5. What does it mean that many chemicals are inert and why is this important? Inert means they don't react with other substances.
6. Discuss
7. What
8. How
9. What's your

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