Green Plastics

Plastics can be found in everything, from mattresses to machinery, kitchenware to medical transplants. According to *wasteonline.org.uk,* the world's annual consumption of plastic materials has increased from around 5 million tonnes in the 1950s to nearly 100 million tonnes today. Plastics are made from non-renewable resources such as oil, coal or natural gas. They are broadly known as 'hydrocarbon plastics'.

What Are They?

Green plastics or bioplastics are biodegradable plastics usually made from plants — a renewable resource. Green plastics focus on making convenient living consistent with environmental stability. The manufacture and disposal of green plastics involve environment-friendly processes.

To make green plastics, plant starch and soy protein are used as an alternative to petroleum-based products. Most cereal crops and tubers contain plenty of starch, which is converted into plastic with the help of microorganisms. Scientists have produced plastics from corn, wheat and soybean in the form of cellulose, starch, collagen, casein, soy protein and polyesters.

According to *sciencedaily.com,* using genetic engineering and a number of modern molecular techniques, scientists in the US have successfully modified plants that can grow polyhydroxybutyrate-co-polyhydroxyvalerate (PHBV) — a biodegradable plastic that can be used to produce a wide range of products such as grocery bags, soda bottles, disposable razors, and others.

Biodegradable Feature

Improperly disposed plastic materials are a significant source of environment pollution. Plastics from hydrocarbons are non-biodegradable. Biodegradable substances are those which decompose naturally and do not persist in the environment for a long period. Plastic debris behaves like a suffocating blanket and does not allow water and air to seep into the earth. It reduces soil fertility, lowers underground water level and harms animal life, including marine animals. Besides, carbon dioxide and methane produced during burning of plastic are greenhouse gases. Petroleum-based chemicals and other additives have been proven to be carcinogenic. Most plastics are difficult to recycle. If recycled at all, they are not usually recycled into the same type of product that they were collected from. Melting makes them less useful or reliable.

Application and Production

In India, the concept of biodegradable plastics is new, but their use is gaining popularity in several areas like industrial packaging, agriculture, food packaging and catering, personal care, pharmaceuticals, surgical implants, medical devices and recreation.

Many Indian companies claim to have started production of biodegradable plastics. SPC Biotech Pvt. Ltd., Secunderabad, Om Bioplast Pvt. Ltd., and Degradable Polymer Technologies, Pune, are a few names in this field. Earthsoul India Pvt. Ltd., Mumbai, claims to be India's first and only internationally certified biodegradable plastic products manufacturing company.

Certification

Some international certifications are now available for biodegradable plastics such as DIN Certco Certification of European Union, and those from Japan Bioplastics Association (JBPA) and Biodegradable Plastics Institute, US.

Sources: wasteonline.org.uk, greenplastics.com,sustainablebizness.com, ides.com, sciencedaily.com, indiatogether.org

Online Database

If you are interested in eco-friendly plastic materials available across the world and want to know more about their suppliers, the information is now available at your fingertips. In 2008, IDES — an information management service for plastic materials — launched its Green Plastics Search feature, which provides fast access to datasheets on 1,919 renewable, biodegradable and highly recycled content resins. This search feature is included in Prospector plastics search engine. Prospector from IDES of US is one of the leading polymer materials database products used worldwide, including data on more than 81,887 traditional plastic materials.