Rubber Tree

Rubber, also called India rubber, latex, Amazonian rubber, caucho, or caoutchouc, as initially produced, consists of polymers of the organic compound isoprene, with minor impurities of other organic compounds. Thailand and Indonesia are two of the leading rubber producers. Types of polyisoprenes that are used as natural rubbers are classified as elastomers.

Currently, rubber is harvested mainly in the form of the latex from the rubber tree (Hevea brasiliensis) or others. The latex is a sticky, milky and white colloid drawn off by making incisions in the bark and collecting the fluid in vessels in a process called "tapping". The latex then is refined into the rubber that is ready for commercial processing. In major areas, latex is allowed to coagulate in the collection cup. The coagulated lumps are collected and processed into dry forms for sale.

Natural rubber is used extensively in many applications and products, either alone or in combination with other materials. In most of its useful forms, it has a large stretch ratio and high resilience and also is waterproof.

Industrial demand for rubber-like materials began to outstrip natural rubber supplies by the end of the 19th century, leading to the synthesis of synthetic rubber in 1909 by chemical means

Varieties

Amazonian rubber tree (Hevea brasiliensis)

The major commercial source of natural rubber latex is the Amazonian rubber tree (Hevea brasiliensis),a member of the spurge family, Euphorbiaceae. This species is preferred because it grows well under cultivation. A properly managed tree responds to wounding by producing more latex for several years.

Congo rubber (Landolphia owariensis and L. spp.) Congo rubber, formerly a major source of rubber, came from vines in the genus Landolphia (L. kirkii, L. heudelotis, and L. owariensis).

Dandelion milk contains latex. The latex exhibits the same quality as the natural rubber from rubber trees. In the wild types of dandelions, latex content is low and varies greatly. In Nazi Germany, research projects tried to use dandelions as a base for rubber production, but failed. In 2013, by inhibiting one key enzyme and using modern cultivation methods and optimization techniques, scientists in the Fraunhofer Institute for Molecular Biology and Applied Ecology (IME) in Germany developed a cultivar of the Russian dandelion (Taraxacum kok-saghyz) that is suitable for commercial production of natural rubber. In collaboration with Continental Tires, IME began a pilot facility.

The first use of rubber was by the indigenous cultures of Mesoamerica. The earliest archeological evidence of the use of natural latex from the Hevea tree comes from the Olmec culture, in which rubber was first used for making balls for the Mesoamerican ballgame. Rubber was later used by the Maya and Aztec cultures – in addition to making balls Aztecs used rubber for other purposes such as making containers and to make textiles waterproof by impregnating them with the latex sap

In India, commercial cultivation was introduced by British planters, although the experimental efforts to grow rubber on a commercial scale were initiated as early as 1873 at the Calcutta Botanical Garden. The first commercial Hevea plantations were established at Thattekadu in Kerala in 1902. In later years the plantation expanded to Karnataka, Tamil Nadu and the Andaman and Nicobar Islands of India. Today, India is the world's 3rd largest producer and 4th largest consumer of rubber

Uses

Uncured rubber is used for cements; for adhesive, insulating, and friction tapes; and for crepe rubber used in insulating blankets and footwear. Vulcanized rubber has many more applications. Resistance to abrasion makes softer kinds of rubber valuable for the treads of vehicle tires and conveyor belts and makes hard rubber valuable for pump housings and piping used in the handling of abrasive sludge.

The flexibility of rubber is appealing in hoses, tires and rollers for devices ranging from domestic clothes wringers to printing presses; its elasticity makes it suitable for various kinds of shock absorbers and for specialized machinery mountings designed to reduce vibration. Its relative gas impermeability makes it useful in the manufacture of articles such as air hoses, balloons, balls and cushions. The resistance of rubber to water and to the action of most fluid chemicals has led to its use in rainwear, diving gear, and chemical and medicinal tubing and as a lining for storage tanks, processing equipment and railroad tank cars. Because of their electrical resistance, soft rubber goods are used as insulation and for protective gloves, shoes, and blankets; hard rubber is used for articles such as telephone housings and parts for radio sets, meters, and other electrical instruments. The coefficient of friction of rubber, which is high on dry surfaces and low on wet surfaces, leads to its use for power-transmission belting, highly flexible couplings,[38] and for water-lubricated bearings in deep-well pumps. Indian rubber balls or lacrosse balls are made of rubber.

References-

- https://en.wikipedia.org/wiki/Natural_rubber