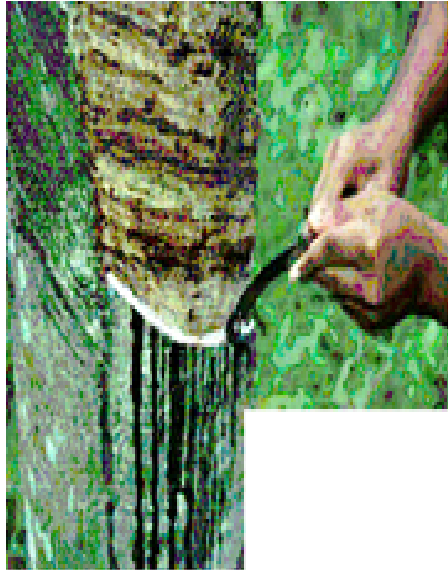


Rubber Concept: Natural Rubber-2

The major commercial source of natural rubber latex is the *Hevea Brasiliensis* rubber tree. This species is preferred because it grows well under cultivation.



Congo rubber

Congo rubber, formerly a major source of rubber, came from vines in the genus *Landolphia*

Dandelion (karahindiba)

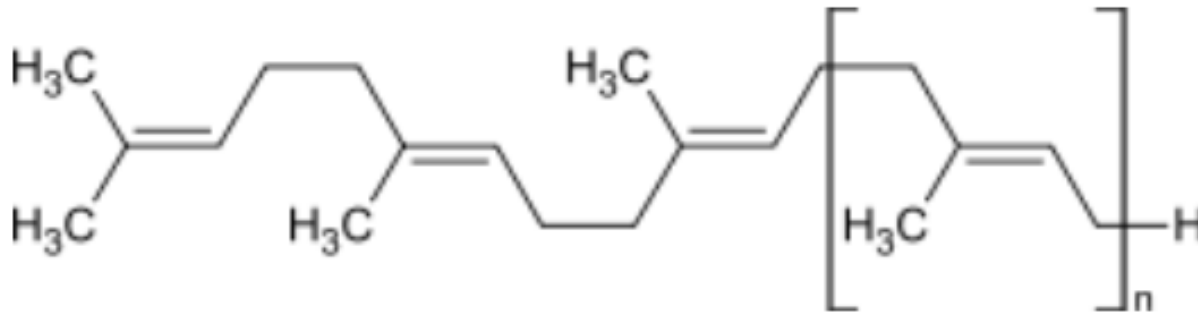
Dandelion milk contains latex. The latex exhibits the same quality as the natural rubber from rubber trees. In the wild types of dandelion, latex content is low and varies greatly.



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 IME in Germany developed a cultivar that is suitable for commercial production of natural rubber. In collaboration with Continental Tires, IME began a pilot facility.

Other Rubber Sources

Many other plants produce forms of latex rich in isoprene polymers, though not all produce usable forms of polymer as easily as the Pará. Some produce other desirable materials, for example gutta percha and chicle.



Chemical structure of gutta-percha

The term gum rubber is sometimes applied to the tree-obtained version of natural rubber in order to distinguish it from the synthetic version

Latex Production

Rubber is generally cultivated in large plantations, for example in Kerala-India. Asia was the main source of natural rubber, The three largest producers, Thailand, Indonesia and Malaysia, for all natural rubber production.

Natural rubber is not cultivated widely in its native continent of South America due to the existence of South American leaf blight (yaprak yanıklığı), and other natural predators.



Rubber Properties

- Rubber begins to melt at approximately 180 °C (356°F).
- The two main solvents for rubber are turpentine and naphtha. Because rubber does not dissolve easily, the material is finely divided by shredding prior to its immersion.
- Rubber exhibits unique physical and chemical properties. Rubber exhibits good well stress–strain behavior. Natural rubber can be vulcanized and is sensitive to ozon cracking.
- Raw rubber storage depots and rubber processing can produce malodour.
- Malodour of Natural Rubber

Raw rubber storage depots and rubber processing can produce malodour that is serious enough to become a source of complaints and protest to those living in the vicinity.

Microbial impurities originate during the processing of block rubber. These impurities break down during storage or thermal degradation and produce volatile organic compounds.

Examination of these compounds using GC/MS and GC indicates that they contain sulphur, ammonia, alkenes, ketones, esters, hydrogen sulphite, nitrogen, and low molecular weight fatty acids.

When latex concentrate is produced from rubber, sulphuric acid is used for coagulation. This produces malodourous hydrogen sulphide. The industry can mitigate these bad odours with scrubber systems.

The following are the physical properties of rubber:

- Specific gravity.
- Abrasion resistance.
- Tear resistance.
- Compression set.
- Resilience.
- Elongation.
- Tensile modulus.
- Tensile strength.
- It is a bad conductor of heat.
- 16. Rubber is practically water and gas tight its electrical characteristics are affected by moisture, especially, compounded with considerable quantities of the substances which increase the sensitivity to moisture

Microbial impurities originate during the processing of block rubber. These impurities break down during storage or thermal degradation and produce volatile organic compounds.

Microbial degradation

Natural rubber is susceptible to degradation by a wide range of

Allergic reactions



Some people have a serious latex allergy, and exposure to natural latex rubber products such as latex gloves can cause anaphylactic shock. The antigenic proteins found in *Hevea* latex may be deliberately reduced (though not eliminated) through processing.

Latex from non-Hevea sources, such as Guayule, can be used without allergic reaction by persons with an allergy to *Hevea* latex.

Some allergic reactions are not to the latex itself, but from residues of chemicals used to accelerate the cross-linking process.