Rubber Processing and Profiting: Compounding, Mixing, Vulcanization, Extrusion, Materials, Principles, Rubber Products, Natural Rubber Processing, Rubber Reclaiming

Description:

Rubber is a polymer which is majorly classified as natural rubber and synthetic rubber.Natural rubber only contains the monomers of isoprene whereas; the synthetic rubber may contain different types of monomers. Natural rubber is coagulated latex obtained from certain types of trees that are grown in the tropics.Whereas, synthetic rubber is obtained by mixing butadiene and styrene which are two by-products of petroleum refining. About 70% of rubber consumed belongs to the category of synthetic rubbers. Manufacturers of synthetic rubbers can adapt to different chemical formulations in order to meet specific requirements of end-use industries. Rubber is processed using several chemicals to manufacture useful products such as rubber mats and automobile tires. The rubber processing chemicals help in improving the resistance of rubber against effects of heat,oxidation, sunlight, ozone and mechanical stress. Rubber processing chemicals also improve the overall process of vulcanisation. Rubber processing chemicals include a wide range of products such as antidegradants, accelerators and processing aids among others.

Methods for processing rubber include mastication and various operations like mixing, calendaring,extrusion, all processes being essential to bring crude rubber into a state suitable for shaping the final product. The former breaks down the polymer chains, and lowers their molecular mass so that viscosity is low enough for further processing. After this has been achieved, various additions can be made to the material ready for cross-linking. Rubber may be masticated on a two-roll mill or in an industrial mixer, which come in different types.

Compounding

- Rubber is always compounded with additives
- Compounding adds chemicals for vulcanisation, such as sulfur
- Additives include fillers which act either to enhance the rubber's mechanical properties (reinforcing fillers) or to extend the rubber to reduce cost (non-reinforcing fillers)
- It is through compounding that the specific rubber is designed to satisfy a given application in terms of properties, cost, and process ability

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Keywords: Rubber Processing and Profiting, Rubber Compounding, Rubber Mixing, Rubber Vulcanization, Rubber Extrusion, Rubber Materials, Principles, Rubber Products, Natural Rubber Processing, Rubber Reclaiming, polymer, Silicone Rubbers, Polybutadiene And Polyisoprene, Styrene Butadiene Rubber (SBR), Reclaimed Rubber, Nitrile And Polyacrylic Rubber, Rubber Natural

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