



An Overview of Synthetic Rubber

Most molded rubber components are made from specialized synthetic rubber compounds, each with its own unique set of properties.

What is Rubber? The term “rubber” originally referred to natural rubber made from latex sap extracted from the rubber tree. Eventually, latex supply constraints and the demands of specific applications led to the development of rubber-like compounds made from long, chain-like molecules. These compounds, known as *elastomers* (elastic polymers), are engineered to provide enhanced physical properties that are superior to those of natural rubber. Produced in chemical plants, synthetic rubber is made from the byproducts of petroleum processing.

Common Types of Synthetic Rubber

- Nitrile Butadiene Rubber (NBR)
- Butyl Rubber (IIR)
- Ethylene Propylene Diene Monomer (EPDM)
- Styrene Butadiene Rubber (SBR)
- Neoprene (CR)
- Silicone (Q)
- Fluorocarbon Elastomer/Viton® (FKM)
- Hydrogenated Nitrile (HNBR)

Each of these compounds is engineered to offer specific strengths, but each one also has weaknesses. The most important characteristics of any rubber compound are its

physical properties, temperature range, and chemical resistance. Our team of experts will help you choose the right compound for your application.

Physical Properties of Rubber A compound’s physical properties dictate how it will respond to the physical demands of its intended application.

Physical Properties Include

- Hardness
- Tensile Strength
- Tensile Modulus
- Elongation
- Resilience
- Compression Set
- Tear Resistance
- Abrasion Resistance

Temperature and Chemical Resistance In addition to withstanding physical demands, a compound must also be able to function in an application’s operating temperature and chemical environment. Each compound has its own range of operating temperatures and resistance to specific chemicals.