RAJ INDUSTRIES: Establised 29 years ago manufacturing process of moulding and extrusion of Rubber and plastic components for various industrial sectors

Industries we serve:

Automobile Industries Construction

Chemical Industries

Agricultural Industries

Household Industries

Marine

Road safety

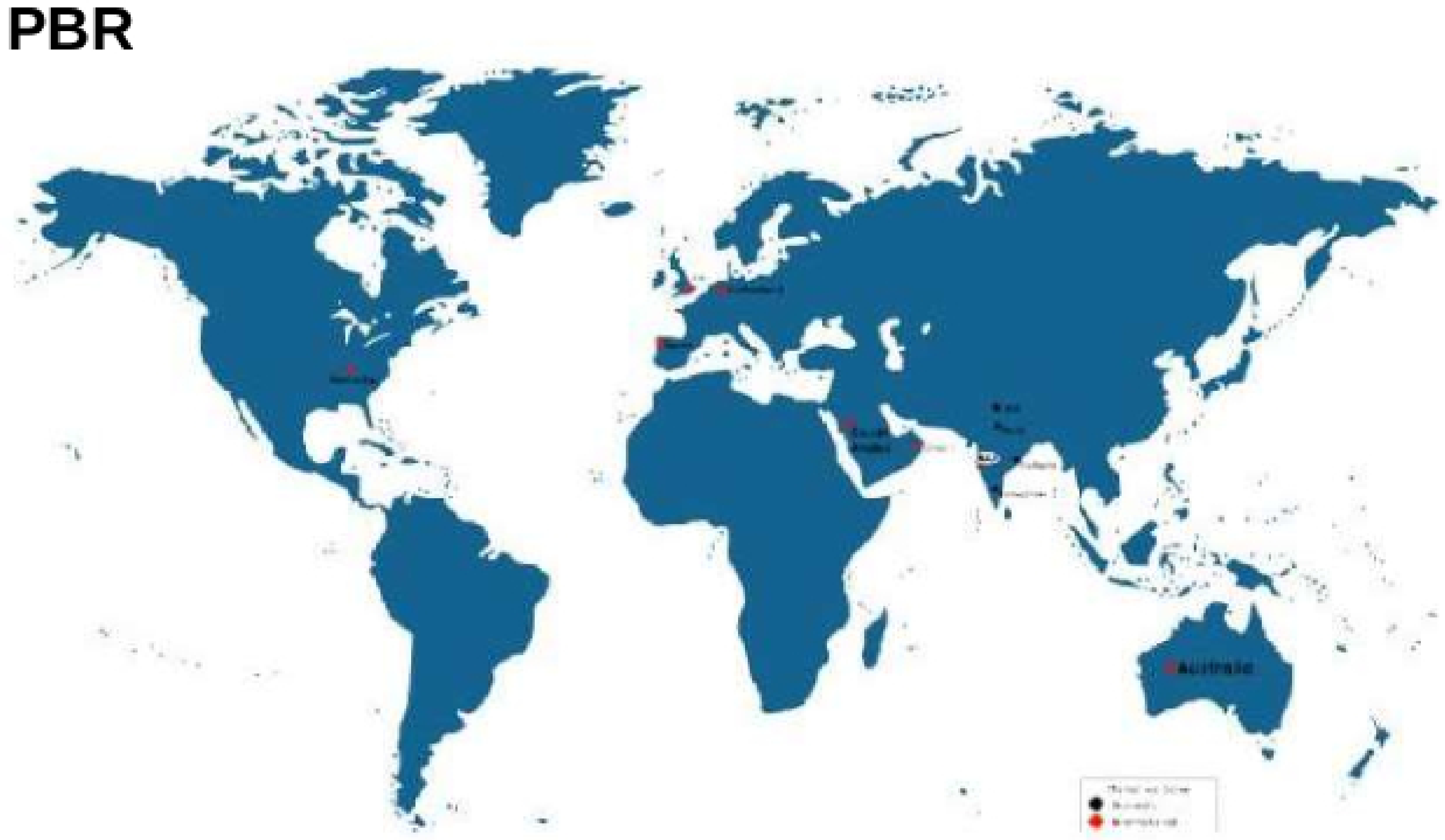
Pharmaceutical Industries

Quality Policy

All products are manufactured as per customer's requirements / specifications. Internal Quality Control is followed during manufacturing process. Guarantees high standards & performances. Assures strict control on Procurement, Production, Calibration, Testing.

Raw Material We Process

RUBBER	
Natural	**High-Density Polyethylene (HDPE)**
Nitrile	**Polyvinyl Chloride (PVC)**
Neoprene	**Low-Density Polyethylene (LDPE)**
EPDM	**Polypropylene (PP)**
Butyl	**PPCP**
Polyurethane	**NYLON**
Silicone	**ABS**
Viton	**POLYCARBONATE**
SBR / PBR	



RAJ®

COMPONENTS	APPLICATIONS
SHEETS MOULDED SHEETS AND Sponge Sheet, TElectrical insulation	Used as car mats, insulation, dust, sealing, Packing, Gasketing in Automobile, Laboratory, Hospitals, Airports, and Power Plants, Electricity Board.
MOUNTINGS & PADS Anti Vibration, Shock Vibration pad & Engine MOUNTINGS	Used in all engines in Automobiles, Marine, Generator, Diesel engines to absorb the shock & vibration & also used by Power plants Railway Heavy Eng. Units
SILICONE SLEVINGS High Voltage, High Temp. Resistant SILICONE SLEEVINGS	Used for insulation purpose in Electronic & Refrigeration industries. Used in Carona Treatment Plant also.
SILICONE TUBES Medical & Food grade SILICONE TUBINGS	Used in disposable & Pharmaceutical Industries. also used in cardiovascular Surgery.
PROTECTIVE RUBBER GUARDS	Used as Impact protection to columns, loading bays, Parking Lots.
CONSTRUCTION PROFILE / BEEDING FROM EPDM / NEOPRENE / SILICONE RUBBER / PVC PROFILE / LDPE & LDE PROFILE	To be used for fixing glasses in aluminum sliding windows and in furniture industry
DIAPHRAGMS	Used in Pumps. Valves - Control Valves Diaphragm Valves, Actuators etc
BELLOWS	Used in automotive industry and in agri tractors
DOCK FENDERS Hollow, Cylindrical, Square, Rectangular, D Shape, V / W Shaped, Cell type, Cone type etc.	Used on berth, jetties, oil rigs, ferry boats & also on ships by ship builders, Ship repairers by ports, dockyards to absorbs the shock and to prevent damage to Jetty as well as ships.
MISCELLANEOUS INDUSTRIAL PRODUCTS Oil seals, 0 Rings, Gaskets Profiles, Beadings, Square sections, Silicone Rubber Bonded Sheet Rubber to plastic and metal bonded parts	Used by all industries to resist heat, cold oil, grease, chemicals leakages etc. & for specific applications.

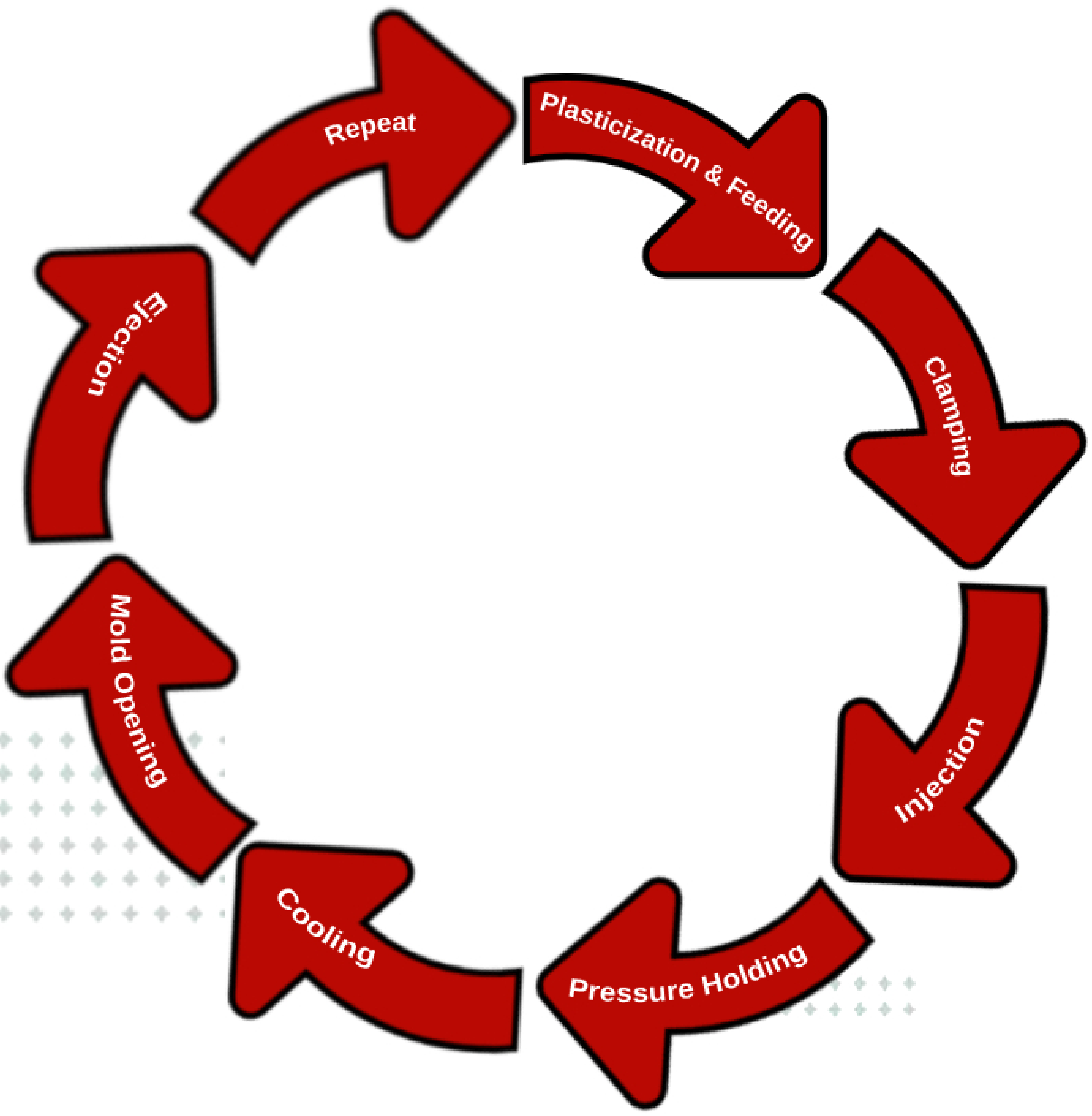
RAJ®

RUBBER

Raw Material incoming and weighing → Storage → Mixing → Storage → Blank preparation → Moulding → Storage → Deflashing → Quality check → Finished Goods Storage → Packing and Dispatch

Raw Material Weighing → Mixing → Milling → Extrusion → Vulcanising → Finishing and Packing



Material Feeding

Melting and Mixing

Filtration

Die Forming

Cooling

Cutting and Finishing

Styrene-Butadiene Rubber (SBR) NATUAL RUBBER (NR)

SBR denotes a copolymer of styrene and butadiene, typically containing about 23% styrene, with a Tg of approximately –55 °C. It is the most widely used synthetic elastomer, with the largest volume production. It is synthesized via free-radical polymerization as an emulsion in water, or anionically in solution. In emulsion polymerization, the emulsifier is usually a fatty acid or a rosin acid. The former gives a faster curing rubber with less tack and less staining. The molecular weight is controlled (to prevent gelation) by mercaptan chain transfer agents. When polymerization is complete, coagulation of the emulsion is carried out with salt, dilute sulfuric acid, or an alum solution. Alum coagulation results in a rubber with the highest electrical resistivity. When emulsion polymerization is carried out at an elevated temperature (~50 °C), the rate of radical generation and chain transfer is high, and the polymer formed is highly branched. To overcome this, polymerization is carried out at low temperature (~5 °C), producing “cold” emulsion SBR, with less branching and giving stronger vulcanizates. A common initiator for anionic polymerization is butyl lithium. The vinyl butadiene content, and hence Tg, of SBRs polymerized in solution are increased by increasing solvent polarity. In comparison with emulsion polymers, the molecular weight distribution of anionically prepared SBR is narrow, and, because the chain ends are “living”, i.e., they remain reactive after polymerization, the molecules can be function alized or coupled. For example, the SBR macromolecules can be amine-terminated to provide increased interaction with carbon black, or coupled with $SnCl_4$ to give star-shaped macromolecules that break upon mastication in the presence of stearic acid to yield a material with lower viscosity. Solution SBR is also purer than emulsion SBR, because of the absence of emulsion residues. But compared at similar number-average molecular weights, emulsion SBRs are more extensible in the uncured (so-called green) state than anionic SBRs.

Nitrile-Butadiene Rubber (NBR)

NBR, also termed nitrile rubber, is an emulsion copolymer of nitrile and butadiene. Acrylonitrile contents vary from 18 to 50%. Unlike CR, polarity in NBR is introduced by copolymerization with the polar monomer, acrylonitrile, which imparts excellent fuel and oil resistance. With increased acrylonitrile content, there is an increase in Tg, reduction in resilience, lower die swell, decreased gas permeability, increased heat resistance, and increased strength. Because of unsaturation in the butadiene portion, NBR is still rather susceptible to attack by oxygen and ozone. Aging behavior can be improved by blending with small amounts of polyvinyl chloride. Nitrile rubber is widely used for fuel and oil hoses, and seals.

Silicone Rubber (MQ, VMQ, PMQ, PVMQ)

Unlike the previously discussed elastomers which have carbon-carbon backbones, silicone rubbers contain very flexible siloxane backbones, and have very low glass transition temperatures. The most common silicone elastomer is polydimethyl siloxane (MQ) with methyl substituent groups on the polymer chain. It has a Tg of –127 °C. Other members of the silicone rubber family have vinyl and phenyl substituent groups in addition to methyl, as denoted by the additional letters in their reference let ters. Silicone rubbers have both excellent high temperature resistance and low temperature flexibility. In addition, they possess good biocompatibility and thus are used in implants and prostheses. Other uses include gaskets, seals, and O-rings.

Natural Rubber (NR): Natural rubber is produced from the latex of the Hevea brasiliensis tree. Before coagulation, the latex is stabilized with preservatives (e.g., ammonia, formaldehyde, sodium sulfite) and hydroxylamine may be added to produce technically-specified, constant-viscosity grades of NR. The Tg of NR is about –70 °C and its structure is thought to be completely cis-1,4-polyisoprene, except for the chain ends. NR contains small amounts of fatty acids and proteinaceous residues that promote sulfur vulcanization. Because NR macromolecules are configured identically (stereoregular), they spontaneously pack together as crystallites on standing at low temperature, at a maximum rate at temperatures around –25 °C. NR also crystallizes upon straining. In fact, strain-induced crystallization imparts outstanding green strength and tack, and gives vulcanizates with high resistance to cut growth at severe deformations. NR macromolecules are susceptible to fracture on shear ing. High shearing stresses and oxygen promote the rate of molecular chain scission.Several modified natural rubbers are available commercially. Some examples are: a) Deproteinized, to reduce water absorption, e.g., in electrical applications where maximum resistivity is required. Reduced water absorption has important benefits for engineering applications, giving better control of modulus and lower creep and stress relaxation.b) Skim rubber, a high-protein, fast curing product used in cellular foams and pressure sensitive adhesives. c) Superior processing, in which ordinary and vulcanized lattices are blended in about an 80 : 20 ratio before coagulation. Unfilled or lightly filled compounds made with superior processing NR give smoother extrudates with better dimensional control compared to those prepared from regular NR because of reduced die swell.d) Isomerized, prepared by milling NR with butadiene sulfone, resulting in cis/trans isomerization which inhibits crystallization. Unfortunately, inhibition of crystallization reduces the high strength and fatigue resistance characteristics of NR because these de sirable properties are derived from the abitity of NR to crystallize on stretching. e) Epoxidized, an oil resistant rubber, which retains the ability to strain crystallize. Synthetic polyisoprene (IR): IR is produced both anionically and by Ziegler-Natta polymerization. The former material has up to 95% cis–1,4 microstructure, while the latter may be as much as 98% stereoregular. Even though the difference in stereoregularity is small, Ziegler-Natta IR is substantially more crystallizable. However, both types of IR have less green strength and tack than NR. IR compounds have lower modulus and higher breaking elongation than similarly formulated NR compositions. This is due, at least in part, to less strain-induced

Ethylene-Propylene Rubber (EPR, EPDM)

The commercial rubbers with the lowest density are ethylene-propylene (EPR) copolymers made by Ziegler-Natta and metallocene polymerization. To introduce unsaturated cure sites, a non-conjugated diene termonomer, such as 1,4 hexadiene, ethylidene norbornene, or dicyclopentadiene, is employed. EPDM (ethylenepropylene diene monomer) has a small number of double bonds, external to the backbone, introduced in this way. The ratio of ethylene to propylene in commercial grades varies from 50/50 to 75/25, and a typical Tg is –60 °C. EPRs and EPDMs have excellent resistance to weathering and good heat stability. They can be made partially crystalline to give high green strength, but they possess poor building tack. Applications include roofing, seals, gaskets, and hose.

Fluorocarbon Rubbers

Fluorocarbon rubbers are made in emulsion and are among the most inert and expensive elastomers. A typical one is made by copolymerizing the fluorinated analogs of ethylene and propylene. This rubber has a density of 1.85 g/cm3 and has a service temperature exceeding 250 °C. It is little affected by immersion in acids, bases, or aromatic solvents; however, ketones and acetates attack the material. There are many aircraft applications for fluorocarbon rubbers, including O-rings, seals, and gaskets.

High-Density Poly Ethylene (HDPE)

High-Density Poly Ethylene (HDPE) is a petroleum-based thermoplastic polymer considered one of the most versatile plastic materials available today. It is used to manufacture numerous items, including food and beverage containers, cleaning product bottles, pipes, cutting boards, and some shoe parts. HDPE also appears in more complex items such as wood-plastic composites, 3-D printing filaments, and components used for skeletal and facial reconstruction surgery. Although the density of HDPE is only marginally higher than LDPE (low-density polyethylene), its linear structure demonstrates significantly less branching. This means that it exhibits stronger intermolecular forces and tensile strength than LDPE. This is why a 60-gram HDPE container can safely carry around 8 pounds of weight or over a gallon of liquid.

Malleability: One of the main benefits of HDPE plastic is its ability to be molded easily once the optimum temperature is reached. Due to a high melting point, HDPE stays rigid until it reaches very high temperatures. Once it's reached its melting point, the material can be efficiently molded for various applications, from milk jugs and food storage containers to corrosion-resistant piping and playground equipment.

Easily Recycled: Recycling is not only a thoughtful and responsible environmental move, but it's also an important consideration when marketing and promoting specific products. Fortunately, HDPE plastic is easily recyclable. Businesses and individuals can significantly reduce plastic production costs by sending used or no longer needed HDPE plastic to the recycling plant instead of the landfill. And most HDPE-produced consumer item containers can go straight into any neighborhood's weekly recycling pickup. Because one of HDPE plastic's most attractive features is its durability and weather resistance; it stands to reason that it's also resistant to mold, mildew, rotting, and insects. Also, it can be easily molded into almost any shape—making it perfect for any number of products that may spend a lot of time outdoors, including: Outdoor patio furniture,Playground equipment,Storage containers,Trash and recycling bins Compost bins Plastic lumber, Plastic automobile parts—including fuel reservoirs

Polyvinyl Chloride (PVC or Vinyl) is an economical and versatile thermoplastic polymer widely used in the building and construction industry to produce door and window profiles, pipes (drinking and wastewater), wire and cable insulation, medical devices, etc. It is the world's third-largest thermoplastic material by volume after polyethylene and polypropylene.
It is a white, brittle solid material available in powder form or granules. Due to its versatile properties, such as lightweight, durable, low cost and easy processability, PVC is now replacing traditional building materials like wood, metal, concrete, rubber, ceramics, etc. in several applications.

Key Properties of PVC Polymer

PVC is a very versatile and cost-effective material. Its main properties and benefits include:

Electrical Properties: PVC is a good insulation material, thanks to its good dielectric strength.

Durability: PVC is resistant to weathering, chemical rotting, corrosion, shock and abrasion. It is therefore the preferred choice for many long-life and outdoor products.

Flame Retardancy: Because of its high chlorine content, PVC products are self-extinguishing. Its oxidation index is ≥45. Antimony trioxide has been used extensively, usually in combination with phosphate ester plasticizers, giving excellent fire performance and mechanical properties.

Cost/Performance Ratio: PVC has good physical as well as mechanical properties and provides excellent cost-performance advantages. It has long life span and need low maintenance.

Mechanical Properties: PVC is abrasion-resistant, lightweight and tough.

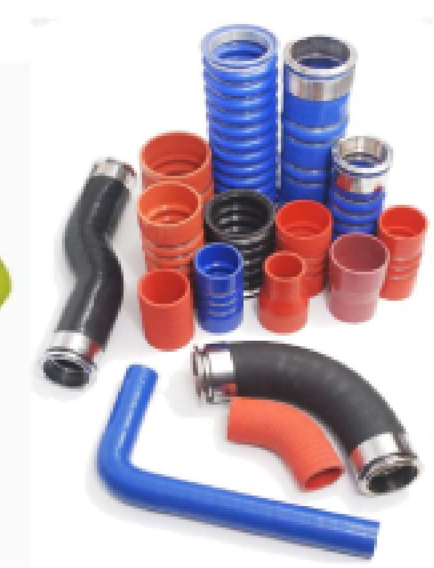
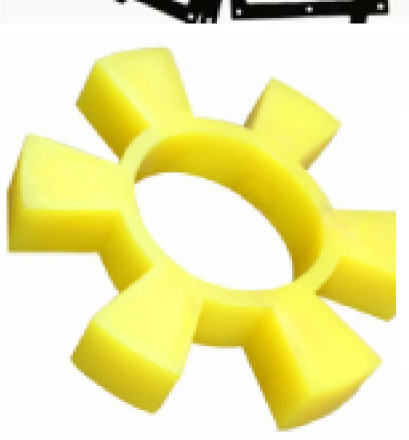
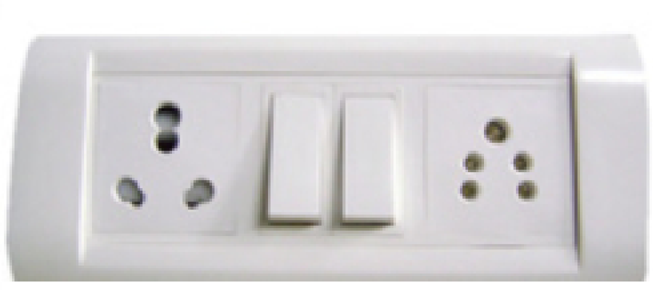
Chemical Resistance: PVC is resistant to all inorganic chemicals. It has very good resistance against diluted acids, diluted alkalis and aliphatic hydrocarbons. Attacked by ketones; some grades swollen or attacked by chlorinated and aromatic hydrocarbons, esters, some aromatic ethers and amines, and nitro- compounds

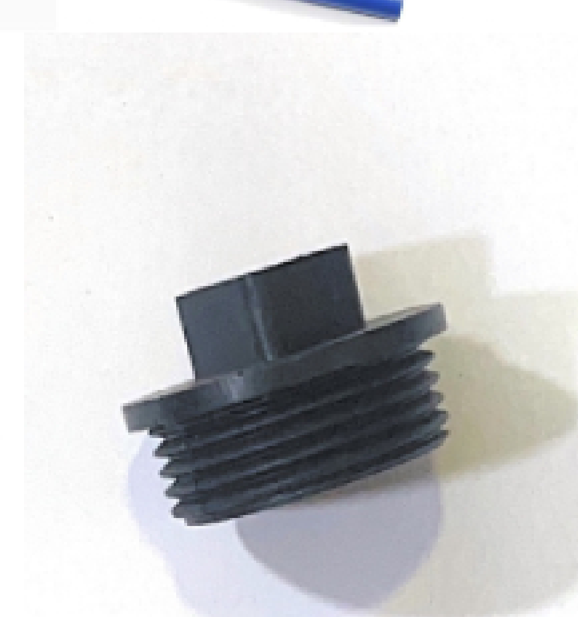
Some Of Our Products





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