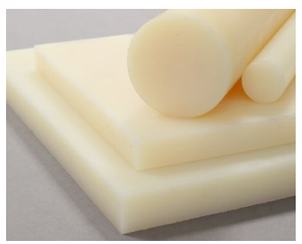
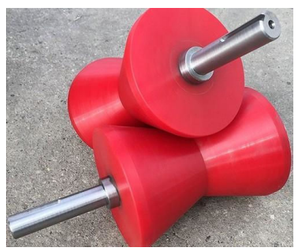
HDPE, NYLON AND POLYURATHENE

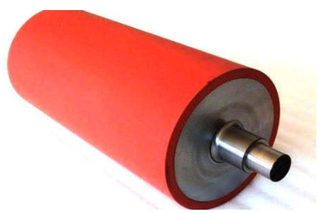
High-Density Polyethylene (HDPE) is a thermoplastic polymer known for its high strength-to-density ratio, chemical resistance, and versatility. Widely used in industrial applications, HDPE exhibits exceptional resistance to corrosion, abrasion, and chemicals, making it suitable for piping systems, storage tanks, and chemical processing equipment. Its lightweight nature, coupled with durability and flexibility, renders it ideal for applications requiring impact resistance, such as geomembranes in landfill liners and protective barriers. However, HDPE's susceptibility to oxidative degradation limits its use in prolonged exposure to sunlight, necessitating UV stabilization for outdoor applications. Despite this limitation, its cost-effectiveness, ease of fabrication, and recyclability contribute to its widespread adoption in various industrial sectors.

Nylon, a thermoplastic material, boasts high strength, toughness, and abrasion resistance, making it a popular choice in various industrial applications. Its exceptional mechanical properties, including low friction coefficient and high wear resistance, make it suitable for gears, bearings, and structural components in machinery. Nylon's versatility extends to textiles, automotive parts, and consumer goods. However, its moisture absorption tendencies can lead to dimensional changes and reduced mechanical properties in humid environments, necessitating careful consideration in certain applications.

Polyurethane, a versatile polymer, exhibits excellent abrasion resistance, high load-bearing capacity, and flexibility, making it valuable in industrial applications. It is commonly used in seals, gaskets, rollers, and wheels due to its resilience and resistance to oils, fuels, and chemicals. Polyurethane's ability to be formulated into various hardness levels broadens its utility across a wide range of applications, from automotive components to industrial machinery. Nevertheless, exposure to UV radiation can cause degradation, limiting its outdoor applications without proper UV stabilization measures.







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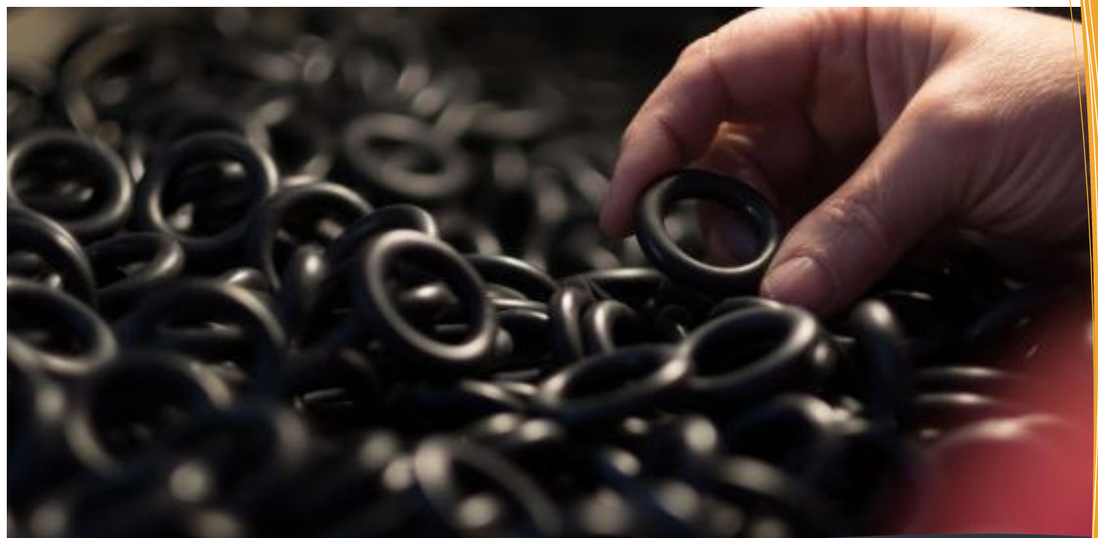

simplifying
RUBBER AND OTHER ENGINEERING MATERIALS

Technology at work for you

RUBBER AND OTHER ENGINEERING MATERIALS

- NATURAL RUBBER
- SBR
- EPDM.
- NEOPRENE.
- NITRILE.
- VITON.
- HDPE.
- NYLON 66
- POLYURETHANE (PU)

NATURAL RUBBER

Isoprene

The original natural material which has been in commercial use since the turn of the last century. A widely developed rubber with a large range of low cost compounds.

PROPERTIES:

High resilience.
Wide range of hardnesses.
Good compression set.
Very strong - tear & abrasion resistant.

LIMITATIONS:

Lack of resistance to oil and organic fluids.
Poor resistance to ozone, weather & oxidation – tendency to perish in open air.
Low working maximum temperature.

TYPICAL APPLICATIONS:

Duties requiring good tensile strength & wear resistance
Shock absorption.
Dynamic components working inside equipment that are protected from constant air changes.

SBR

Styrene Butadiene Rubber

One of the cheaper synthetic rubbers which is easy to process in large quantities.

PROPERTIES:

Good physical strength
Good tear & abrasion resistance

LIMITATIONS:

Poor resistance to oils or fuels

TYPICAL APPLICATIONS:

Widely used in the Footwear (shoe sales) and Tyre industries

EPDM

Ethylene Propylene Diene Monomer

Another low cost synthetic rubber, originally developed in the 1950s for use within the tyre manufacturing industry. It became more widely used because of its outstanding resistance to ozone, weathering and water.

PROPERTIES:

Excellent water resistance, even at elevated temperatures
Good stability over long periods of time
Resistant to many water based chemicals
Excellent weathering resistance

LIMITATIONS:

Will not resist oil or oil based products

TYPICAL APPLICATIONS:

Potable water duties (WRC approved)
'O' Rings, Seals & Gaskets
General engineering not exposed to oil

NEOPRENE

Chloroprene

One of the first synthetic rubbers developed in the search for oil resistant compounds. Extensively used due to its wide range of useful properties and comparatively low price.

PROPERTIES:

Resistant to oils & chemicals
Flame retardant (self extinguishing)
Water & weather resistant

LIMITATIONS:

Not suitable for contact with fuels
Tendency to tear once initially damaged

TYPICAL APPLICATIONS:

Most general engineering & mechanical applications, other than those in contact with fuel

NITRILE

Acrylonitrilebutadiene

A good quality oil resistant rubber with reasonable performance in contact with fuels. There are rubbers with higher degrees of resistance, but these are much more expensive.

PROPERTIES:

Good resistance to Petroleum based fluids - even at elevated temperatures
Very low level of permeability to gases

LIMITATIONS:

Flammable and burns with toxic fumes
Comparatively low resistance to ozone and weathering
Poor electrical strength

TYPICAL APPLICATIONS:

Seals, Gaskets, 'O' Rings etc., in contact with petroleum based fluids
Sealing against gases

VITON

Fluorocarbon

uited to the petrochemical industry, this ynthetic rubber offers the best all round resistance to hostile chemicals and oils particularly at elevated temperatures.

PROPERTIES:

Good resistance to petroleum based fluids
Excellent chemical resistance
Strong with good tear and abrasion resistance
Excellent upper temperature capabilities
Good resistance to water
Outstanding oxidation, ozone and weather resistance

LIMITATIONS:

Limited use at lower temperatures
Very expensive compared to nearly all other rubbers

TYPICAL APPLICATIONS:

Fluid sealing duties at elevated temperatures in contact with aggressive chemicals and petroleum products