Material Datasheet

Seamless Rubber Tubing

Materials

Natural Gum Rubber White FDA

Crude natural rubber is found in the juices of many plants (shrubs, vines, and trees), the principal of which is the Hevea Brasiliensis tree, native to Brazil. After the latex is processed, natural rubber becomes an elastomer with excellent mechanical properties.

Advantages:
Best seller for dry bulk material handling. Excellent abrasion resistance.
Extremely elastic and has a great elongation without permanent deformation, which makes it very suitable for machinery with a large movement / displacement.
Natural rubber has excellent tensile, elongation, tear resistance, resilience, and electrical insulation.
Natural rubber has low compression set. good flexing qualities at low temperatures, better than most synthetics, but not as good as silicone. Natural rubber has superb abrasion resistance.

Limitations:
Natural rubber deteriorates when exposed to oils, fuels, solvents, petroleum derivatives, and hydraulic fluids. Without special additives, natural rubber has poor resistance to sunlight, oxygen, ozone, and high temperatures.

Hardness:	40° Shore A +/-5°	ASTM D2240
Temperature Resistance :	-40°C to 80°C / -40°F to 176°F	
Tensile to Break:	3000 PSI minimum	ASTM D412
Elongation to Break:	500% minimum	ASTM D412
Specific Gravity:	1.05 g/cm^3	
Compliancy according to:	FDA	

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Material Datasheet

EPDM

There are two basic types of EP rubber available in today's market—EP and EPDM. EP is a copolymer of ethylene and propylene, while EPDM is a terpolymer combining ethylene, propylene and a diene monomer. EP uses a peroxide cure system. EPDM uses a sulphur cure system.

Advantages:
Great solvent resistance. Good resistance to weather aging, oxygen, ozone, UV exposure, sunlight, water, steam and heat.
EPDM has an outstanding chemical resistance to dilute acids, polar materials such as phosphate ester base hydraulic fluids, oxygenated solvents (acetone, methyl, ethyl ketone, and other ketones.), alcohol. animal and vegetable oils, alkalis and compression set.
EPDM's dynamic and mechanical properties are, in general, between natural rubber and SBR.

Limitations:
Poor resistance to petroleum oils, fluids, or solvents because significant swelling would result.
Poor resistance to aromatic hydrocarbons (e.g., benzol, toloul) and aliphatic hydrocarbons (e.g., kerosene, turpentine).

EPDM White FDA

Temperature Resistance :	-40°C to 120°C / -40°F to 248°F	
Hardness:	60° Shore A +/-5°	ASTM D2240
Tensile to Break:	1500 PSI minimum	ASTM D412
Elongation to Break:	700% minimum	ASTM D412
Specific Gravity:	1.25 g/cm^3	
Compliancy according to:	FDA	

EPDM Black

Temperature Resistance :	-40°C to 120°C / -40°F to 248°F	
Hardness:	65° Shore A +/-5°	ASTM D2240
Tensile to Break:	1000 PSI minimum	ASTM D412
Elongation to Break:	500% minimum	ASTM D412
Specific Gravity:	1.13 g/cm^3	
Compliancy according to:		

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White Nitrile FDA

Nitrile, or Buna-N, is a copolymer of butadiene and acrylonitrile. It is a general purpose oil-resistant polymer.

ADVANTAGES:

Nitrile has excellent resistance to oil, gasoline, solvents, mineral and vegetable oils, hydraulic fluid, and fuels. It is recommended for applications that require good oil and grease resistance as well as moderate ozone resistance. Nitrile is superior to most elastomers with regard to compression set or cold flow, tear and abrasion resistance. Nitrile resists acids and bases with the exception of those having strong oxidizing effects. Nitrile is resistant to a broader range of aromatic hydrocarbons than neoprene. Resistance to heat aging is good.

LIMITATIONS:

Nitrile has poor resistance to ketones, chlorinated hydrocarbons, and nitro hydrocarbons. It does not have good ozone, oxygen or sunlight resistance without the addition of special additives.
Nitrile's low-temperature resistance is inferior to natural rubber.
Tear resistance is inferior to that of natural rubber and electrical insulation is lower.

Temperature Resistance:	-40°C to 120°C / -40°F to 248°F	
Hardness:	60° Shore A +/-5°	ASTM D2240
Tensile to Break:	1000 PSI minimum	ASTM D412
Elongation to Break:	300% minimum	ASTM D412
Specific Gravity:	1.4 g/cm^3	
Compliancy according to:	FDA	

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Neoprene Black

Neoprene was created in 1930 by DuPont as an air and oil resistant substitute for natural rubber. It was the first mass-produced synthetic rubber. Neoprene is a polymer of chloroprene and is considered a general or all-purpose rubber.

ADVANTAGES:

Neoprene is known for its versatility. It provides good resistance to moderate exposure to ozone, sunlight, oxidation, weather, oils, gasoline, greases, solvents, petroleum oils, animal and vegetable oils, compression set, silicone oil, refrigerants, ammonia, carbon dioxide, water, and steam.
The tear resistance is equal to natural rubber at room temperature; at elevated temperatures tear resistance is poor. Resilience and abrasion strength are good.

LIMITATIONS:

The cost of neoprene is its greatest disadvantage. It is a good multipurpose rubber, but there are other types that offer much better oil, ozone, weather and oxidation resistance at a lower cost when they are used for specific applications. Neoprene has poor resistance to strong oxidizing acids, esters, ketones, chlorinated, aromatic, and nitro hydrocarbons.

Temperature Resistance:	-35°C to 120°C / -30°F to 250°F	
Hardness:	62° Shore A +/-5°	ASTM D2240
Tensile to Break:	1500 PSI minimum	ASTM D412
Elongation to Break:	250% minimum	ASTM D412
Specific Gravity:	1.33 g/cm^3	
Compliancy according to:		

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Black FKM Viton

FKM is a family of fluorocarbon-based fluoroelastomer materials defined by the ASTM International standard D1418, while it is called FPM by ISO 1629 (both first ed. 1995 and ed. 2013).
It is commonly called fluorine rubber or fluoro-rubber.
All FKMs contain vinylidene fluoride as a monomer.
Originally developed by DuPont (under the brand name Viton, now owned by Chemours), FKMs are today also produced by many companies.
Fluoroelastomers are more expensive than neoprene or nitrile rubber elastomers.
They provide additional heat and chemical resistance. FKMs can be divided into different classes on the basis of either their chemical composition, their fluorine content, or their cross-linking mechanism.

PROPERTIES:
Fluorelastomers provide excellent high temperature and aggressive fluids resistance when compared with other elastomers, while combining the most effective stability to many sorts of chemicals and fluids as oil, diesel, ethanol mix or body fluid.

The performance of fluor elastomers in aggressive chemicals depends on the nature of the base polymer and the compounding ingredients used for molding the final products.
Some formulations are generally compatible with hydrocarbons, but incompatible with ketones such as acetone and methyl ethyl ketone, ester solvents such as ethyl acetate, amines, and organic acids such as acetic acid.
They can easily be distinguished from many other elastomers because of their high density of over 1800 kg/m3, significantly higher than most types of rubber.

Hardness:	55° Shore A +/-5° Shore	ASTM D2240
Temperature Resistance:	-40°C to 204°C / -40°F to 400°F	
Tensile to Break:	1300 PSI minimum	ASTM D412
Elongation to Break:	300% minimum	ASTM D412
Specific Gravity:	1.89 g/cm^3	
Compliancy according to:		

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