



General Guidelines for Elastomer Selection

Elastomer (Common Names)	General Description	Advantages	Limitations
*Natural Rubber *Gum Rubber *Polyisoprene	An elastomer made from rubber tree latex.	High elongation & resilience. High tensile strength. Excellent abrasion resistance and good tear resistance. Low compression set. Good flexing qualities at low temperature	Deteriorates when exposed to oils, fuels, solvents & hydraulic fluids. Poor resistance to sunlight, ozone. Not recommended for outdoor applications. Poor high temperature resistance.
*Synthetic Natural *Synthetic Polyisoprene	The synthetic version of natural rubber. No rubber tree latex.	Very similar to natural rubber. Free of allergenic proteins of natural rubber (latex free).	Same limitations as natural rubber.
*Neoprene *Chloroprene *Polychloroprene	A popular elastomer considered by many as a "general purpose" rubber. Often misused as a generic term for the word "rubber".	Good resistance to moderate exposure to ozone, UV, weather as well as oils, greases & solvents.	Poor resistance to strong acids, solvents, esters, Ketones, chlorinated, aromatic and nitro hydrocarbons. See note # 3

Notes:

1. The data presented above should be used only as a general "guide". We cannot guarantee its completeness, nor accuracy, nor assume responsibility for its use.
2. Each manufacturer has his own recipes that are trade secrets. Therefore the chosen elastomers' formulation (recipe) can affect the physical properties of the part thus its function and service life, therefore it is always best for the customer/end user to test first.
3. A rubber compound can be a blend of two or more elastomers (when compatible) in order to influence the finished part's function and service life as well as competitive pricing.



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*Nitrile *Buna 'N' *NBR	A popular elastomer. Specified when gasoline, oil, greases are present.	Very good resistance to oils, solvents, fuels.	Poor resistance to UV, ozone, weathering. Poor resistance to Ketones and chlorinated hydrocarbons. See note # 3
* SBR * Buna 'S' *GRS	Was the first synthetic rubber and most widely used in the 'old days'. Was the lowest cost.	Very good abrasion resistance. Similar to natural rubber. Relative low cost.	Poor resistance to oils, fuels, solvents, hydraulic fluids. Fair resistance to weathering, similar to natural rubber. See note # 3
*EPDM *EPT *EP	A popular elastomer for outdoor applications where weather and water resistance is required.	Very good resistance to ozone, UV, sunlight. Very good temperature resistance. Good resistance to steam, brake fluids and weak acids.	Poor resistance to oils and solvents, aromatic hydrocarbons and petroleum products.

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*Silicone	An elastomer used where high temperature is required. Used in the medical, food processing & pharmaceutical fields due to its purity when processed. Used in industrial applications due to its long service life.	Excellent high temperature resistance. Excellent weathering, UV and ozone resistance.	Poor resistance to solvents, oils, concentrated acids. Tensile strength & tear resistance poor. Poor resistance to steam.
*Fluorosilicone	Seldom used elastomer as a substitute for silicone when improved chemical resistance is required.	Excellent high temperature resistance. Excellent resistance to moderate or oxidizing chemicals, ozone, aromatic chlorinated solvents and bases.	Poor resistance to brake fluids, Ketones. Moderate physical properties. Extremely expensive.
*Fluoroelastomer *Viton (DuPont) *Fluorel (3-M)	An elastomer used when high temperature resistance as well as chemical resistance is required. Several grades available from DuPont & 3-M	Excellent high temperature resistance including acids if proper grade is selected. Very good weathering, ozone resistance.	Poor resistance to Ketones, low molecular weight esters and alcohols and nitro-containing compounds. Limited hardness range. Relatively high cost.

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