

### Rubber

Rubber insulation refers to both natural rubber and SBR compounds, each used in a wide variety of applications and available in a variety of formulas. Because formulas vary, so do temperature ranges and some other basic characteristics.

While this type of insulation has poor oil, ozone and abrasion resistance, it exhibits good low-temperature flexibility, good water and alcohol resistance, good electrical properties, and excellent abrasion resistance.

### Neoprene (Polychloroprene)

This is a synthetic thermoset rubber that must be vulcanized to obtain its desired qualities. It models supreme abrasion, cut-through, oil, and solvent resistance. Neoprene is also known for its long service life and wide ranges of temperature and usability. It is self-extinguishing and flame retardant.

### Silicone

This is an extremely heat resistant and flame retardant material and can be used in temperatures up to 180°C. It is moderately abrasion resistant. Silicone is also extremely flexible. Benefits include a long storage life and good bonding properties that are necessary in many electrical applications.

### Chlorosulfonated Polyethylene (CSPE)

CSPE works well as a low-voltage insulation. It is known for its ability to perform through a wide temperature range as well as for its resistance to chemicals and UV rays.

This insulation material can be found in appliance wire, lead wire, coil leads, transformer leads, and motor lead wire.

Chlorosulfonated Polyethylene is also known as Hypalon, a registered trademark of DuPont.

### Ethylene Propylene Diene Monomer (EPDM)

This synthetic rubber insulation displays outstanding heat, ozone, weather, and abrasion resistance. EPDM replaces silicone rubber in some applications due to its excellent electrical properties, flexibility at both high and low temperatures, from -55°C to 150°C, and good dielectric strength.

### Comparative Properties of Rubber Insulations

	Rubber	Neoprene	CSPE	EPDM	Silicone
Oxidation Resistance	F	G	E	E	E
Heat Resistance	F	G	E	E	O
Oil Resistance	P	G	G	P	F-G
Low Temperature Flexibility	G	F-G	F	G-E	O
Ozone Resistance	P	G	E	E	O
Weather (Sun Resistance)	F	G	E	E	O
Abrasion Resistance	E	G-E	G	G	P
Electrical Properties	G	P	G	E	G
Flame Resistance	P	G	G	P	F-G
Nuclear Radiation Resistance	F	F-G	E	G	E
Water Resistance	G	E	E	G-E	E
Acid Resistance	F-G	G	E	G-E	F-G
Alkali Resistance	F-G	G	E	G-E	F-G
Alcohol Resistance	G	F	G	P	G
Aliphatic Hydrocarbons Resistance	P	G	F	P	P-F
Aromatic Hydrocarbons Resistance	P	P-F	F	F	P
Halogenated Hydrocarbons Resistance	P	P	P-F	P	P-G

P = POOR

F = FAIR

G = GOOD

E = EXCELLENT

O = OUTSTANDING