

## A Comparison of Jacket Materials

### HYPALON (Chlorosulfonated Polyethylene) vs. CPE (Chlorinated Polyethylene)

RESISTANCE TO	HYPALON	CPE
Weather	E	E
Flame	G - VG	G - VG
Ozone	E	VG - E
Heat	E	E
Cold	G	VG
Oil	VG	VG
Acids	E	E
Alcohol	G	G
Alkalis	E	E
Aromatic Hydrocarbons (Benzol, Toluol, etc.)	F	F
Halogenated Hydrocarbons (Degreaser Solvents)	P - F	P - F
Aliphatic Hydrocarbons (Gasoline, Kerosene, etc.)	G	F - G
Abrasion	VG	VG

P = Poor  
 F = Fair  
 G = Good  
 VG = Very Good  
 E = Excellent  
 O = Outstanding

**NOTE:**

These ratings are based on the average performance of general purpose compounds. Any individual property can be enhanced by selective compounding, often at the expense of one or more other properties.

**WEATHER RESISTANCE:** Hypalon resists the elements better than any other commonly used elastomeric jacketing material, although CPE compares favorably with it. Both materials have a very high resistance to attack by ozone and are resistant to aging due to sunlight and UV.

**FLAME RESISTANCE:** Neither Hypalon nor CPE will support combustion, although both materials will burn slowly under the right conditions: excessive heat, flame source, and oxygen supply. The natural flame resistance of these materials can be improved by selective compounding. Cables utilizing Hypalon and CPE jackets have passed all common flame tests: UL, CSA, ICEA, MSHA, and IEEE 383.

**RESISTANCE TO OZONE:** Hypalon is unmatched by any elastomer in its resistance to ozone attack and the effects of corona discharge, although CPE's resistance is extremely good.

**HEAT RESISTANCE:** Both CPE and Hypalon will perform satisfactorily after short term exposure at 275-300°F (135-149°C) and maintain adequate flexibility after repeated exposure at elevated temperatures. As a result, these materials find applications as outer jackets on 105°C rated cords and cables. Hypalon, in particular, has found use on cables for nuclear power plants which require a documented 40 year life at an operating temperature of 90°C.

**COLD RESISTANCE:** Both Hypalon and CPE can be compounded to improve the behavior of general purpose compounds which are flexible at 0°F and can be bent at a temperatures in the range of -40 to -30°C.

**OIL RESISTANCE:** Both materials are highly resistant to attack by Hydrocarbon based oils and fuels and are especially useful in contact with hot oils or at elevated temperatures.

**CHEMICAL AND FLUID RESISTANCE:** CPE is resistant to most strong acids and bases. It is also resistant to many solvents except for those organics with a chlorinated base. Hypalon also exhibits good resistance to attack by most chemicals, greases, and fuels. Thus, these materials are well suited for use as cable jacketing in plant processing areas subject to airborne contaminants.

**ABRASION RESISTANCE:** Hypalon and CPE provide better resistance to abrasion, impact, crushing, and tear than most elastomers, especially when compounded to meet extra-heavy duty requirements. Cables using these materials can be buried for years with little deterioration and do not support the growth of fungus, mold, or mildew.

**ELECTRICAL PROPERTIES:** Hypalon has better electrical properties than any other commonly used jacketing material as evidenced by its use as an integral insulation/jacket for UL Listed 600 Volt RHH/RHW cables. It also finds use as part of an EPR/Hypalon composite insulation system for use on UL building wires and type TC cables as well as on nuclear rated power and control cables. CPE has sufficiently good electricals to be used on welding cables and battery lead cables.

