

Cable Lore

ANACONDA 

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IN GENERAL, NEW MATERIALS THAT HAVE BEEN WELL SCREENED OFFER AT LEAST ONE OUTSTANDING PROPERTY, RARELY FULFILL ALL REQUIREMENTS, AND AS A RULE WILL FIND SOME LEVEL OF APPLICATION

Severe competition among suppliers of materials for the wire and cable industry, plus even stiffer competition from wire and cable manufacturers, has produced an amazing procession of materials and cable constructions for practically all applications. Reams of test data, often without backup of long-time service data, has produced a fog that only those with an intimate working knowledge of raw materials can realistically penetrate.

There has always been considerable appeal in finding one compound that was economical and yet universal in application. Twenty years ago it looked like butyl could do the job. Presently, cross-linked poly is getting a lot of publicity. In a few more years, it will be another material. This is always a goal for R & D to shoot at.

A screening of literally thousands of experimental compounds, involving practically every promising polymer that has been presented in the last 25 years, leads to the following conclusion - "Polymers that have been brought to the commercial stage by suppliers usually have at least one attractive, outstanding property, rarely fulfill all cable requirements, and as a rule will find some level of application."

The following table, while far from complete, briefly describes some of the basic polymers used in the wire and cable industry, showing the property that makes them attractive and also some limiting features that keep them from being universal coverings. All, in one form or another, are presently being used in the industry for some level of application.

POLYMER	OUTSTANDING FEATURE	LIMITING FEATURE
SB-R (Buna-S)	Excellent general-purpose 600-volt insulation.	Poor ozone—resistance Limited to 600-V Insulation.
Butyl	Good balance of properties for H.V. insulation.	Requires jacket for physical protection.
Nutile Rubber	Excellent oil-resistance.	Poor electrical properties.
Neoprene	Flame and oil-resistance.	Relatively poor electricals.
Silicone	Heat-resistance.	Poor physicals.
PVC	Excellent general-purpose insulation and jacket.	Thermal properties.
Polyethylene	Excellent electricals.	Corona sensitive, thermal properties.
Polyurethane	Physically tough.	Poor weathering and moisture-resistance.
Nylon	Physically tough.	Limited electrical properties.
Teflon	Excellent thermal properties .	Poor physicals.
EPR	Good balance of properties for low and high voltage insulation.	Requires jacket for physical protection.
Hypalon	Excellent low voltage insulation and good jacket material.	Limited to 600—volt insulation.
Cross-Linked Poly	Excellent heat aging.	Corona sensitive and very stiff.

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