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ELECTRICAL INSULATION

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2 Claims. (Cl. 260—4)

My invention relates to an electric cable intended for use where there is danger of exposure to high temperatures and/or to water, and more particularly to an insulating compound for electric wires and cables of the general type known as rubber insulated.

I have discovered that when a substantial amount of saturated macro-molecular hydrocarbon derived from mineral oil is included in the rubber, there is found a rubber-like insulating compound having properties of unprecedented heat-resistance and of unusually high resistance to water absorption as determined by deterioration of electrical properties when immersed in hot water. Such an insulation may be extruded or otherwise applied to the wire, like any ordinary rubber compound and may be cured by vulcanizing in the same way.

The electrical properties and other characteristics of my cable may be varied by using either with or as a substitute for the rubber, "Neoprene", "Thiokol" "AXF" plastic or any plastic susceptible of conversion to an elastic form by the use of a conversion agent such as sulfur or zinc oxide; antioxidants may be used.

Such a compound may be extruded as a tube to enclose the conductor or otherwise applied to the cable like any ordinary rubber compound and may be cured in the same way.

The foregoing and other features of my invention will now be described in connection with the accompanying drawing forming part of this specification in which I have shown my cable in its preferred form after which I shall point out more particularly in the claims those features which I believe to be new and of my own invention.

In the drawing:

The single figure is a side view of my invention, in which 1 represents my conductor which may be either a solid wire or a plurality of strands and I may also use a plurality of separate conductors.

Over the conductor 1 I form a layer of my insulating material 2. Suitable mechanical protection 3 may then be used outside of the insulation 2, which may be either metallic or non-metallic, as customary in the art.

The novel feature of this invention lies in the compound used to form the insulating material 2. This compound may be varied to suit the different conditions of service required of the cable, but in all instances it comprises a plastic susceptible of conversion to elastic form by the use of a conversion agent such as sulfur or zinc oxide and a saturated macro-molecular hydrocarbon of mineral oil origin.

I may use rubber alone or in combination with, or instead of rubber, "Neoprene", "Thiokol", or "AXF" plastic, all of which is commercially available.

Macro-molecular is used throughout the specification and claims to mean a molecular weight of the order of tens of thousands. Such a material is commercially available in the forms known as "Vistanex" which is produced by polymerization processes applied to olefins generated in cracking operations, thereby bringing the molecular weights to more than 20,000.

A typical compound has the following composition:

Rubber	25
Macromolecular hydrocarbon of the type known as Vistanex	15
Agerite resin-D	1
Zinc oxide	55.5
Carbon black	1
Stearic acid	0.9
Thionex	1.5
Sulfur	.1
	100.0

Other compounds are made with gilsonite and/or factice or vulcanized oil according to procedures known to the art and according to the properties desired in the uncured or cured condition.

Gilsonite decreases the water absorption. Factice is mixed with rubber where ozone-resistance is desired. The addition of macromolecular hydrocarbons derived from mineral oil, has the effect of giving factice-rubber compounds greater independence of pliability with temperature, better oxygen, ozone, acid, alkali and water resistance and improved ageing characteristics.

Thiokol is marketed by the Thiokol Corporation and well known to the trade as a reaction product of halogen additive compounds of olefins with polysulfides and for convenience of description may be described as an olefine polysulfide reaction product.

AXF is a well known plastic and is a reaction product of halogen additive compound of olefine with an aromatic (ring type) hydrocarbon. AXF is the trade name used by the Naugatuck Chemical Company to designate the product which they make by reacting ethylene chloride with benzene in the presence of suitable catalysts.

Vistanex is a well known Standard Oil Com-