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ELECTRICAL INSULATION

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3 Claims. (Cl. 148—6)

The present invention relates to electrical insulation and more particularly to inorganically insulated electrical conductors.

It is often desirable to insulate copper conductors with coatings which withstand temperatures up to 200° or 300° C. Organic varnish coatings are not sufficient for this purpose. The well known insulations with aluminum oxide or zinc combinations offer great difficulty in their production on copper conductors. Further they are ordinarily porous and therefore usually guarantee no protection against moisture.

According to the invention these difficulties can be avoided if the insulating coating on the copper conductor is produced directly from copper combinations. It has been shown that copper halide and its complex combinations, e. g. cuprous chloride or cuprous bromide are suitable for this purpose. They are produced either on the copper conductor or are placed on it as combinations and then fused, or are applied on the conductor in a fused state.

The production can be carried out in a known manner by electrolysis. The copper conductor is wired as anode in a bath which contains the halogen ion. It may be convenient to add acids, e. g. phosphoric acid, or salts of acids, of which the decomposition voltage lies above the decomposition voltage of the corresponding halogen combinations, in order to keep the hydrogen ion concentration within the limits necessary for undisturbed procedure of the reaction.

When the fused simple or complex copper halide is used, a little copper is added to the melt, to prevent oxidation. To this end the melt container may be manufactured of copper or other copper plated material.

The layer manufactured in accordance with the invention forms a glassy coating which is absolutely impervious. It is also possible to add filling materials such as asbestos to the insulating layer, and, for example, the deposited material which is at first porous can be mixed with asbestos and fused to a homogeneous substance at a higher temperature. Filling materials such as quartz meal, mica powder and so on can be scattered on the porous layer of insulation before heat treatment and then fusing can be done. Further, there is the possibility of placing asbestos covered wires in an electrolysis bath, producing the insulating precipitates between the covering and the conductor and fusing to a substance with the asbestos by means of suitable temperature treatment. The conductor can also be exposed to the action of free halogen, e. g. in a heated gas containing halogen or by drawing the heated conductor through a cold halogen atmosphere.

This application is a division of my copending application, Serial No. 650,382 filed January 6, 1933.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A process for the production of electrically insulated copper conductors which comprises exposing the copper conductor to the action of free halogen.

2. A process for the production of electrically insulated copper conductors which comprises subjecting the copper conductor to a heated gas containing halogen.

3. A process for the production of electrically insulated copper conductors which comprises drawing a heated copper conductor through a cold halogen atmosphere.

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