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PRODUCTION OF METALLIZED DIELECTRIC MATERIALS

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This invention relates to a process of producing metallized dielectric materials, particularly paper.

It has been proposed to produce a condenser dielectric by applying to one side of a dielectric material an insulating coating, for instance varnish, which fills the pores and depressions in the surface of the material and on which the metal layer is deposited by a vacuum process, as the application of metal vapors or the disintegration of the cathode material. The purpose of this method is to fill the holes and cavities always present in the surface to be metallized of the dielectric with an insulating and therefore dielectrically acting substance, so that the metal layer deposited thereon rests on a perfectly level support and is prevented from entering such cavities and forming elevations which would interfere with proper working of the condenser.

Satisfactory action of a dielectric produced under this method depends, however, on the complete covering of the surface subsequently to be metallized by the insulating coating which, moreover, should be spread as uniformly as possible in view of the desired slight thickness.

It is the object of the invention to facilitate checking of the uniformity of the coating by adding coloring matter thereto.

According to the invention, the dyestuffs chosen are preferably such as will dissolve well in varnish solvents, so that coatings combining strong coloring with low thickness can be obtained. The coloring matter should, furthermore, not decompose during drying of the varnish and, above all, during subsequent metallization of the paper or other material while separating substances detrimental to the insulation or disruptive strength of the dielectric.

In further accordance with the invention uniformity of the coating is checked by moving the coated dielectric material, for instance a paper band, past a source of light. The transmitted light will then disclose all faulty spots where the coat is too thin or where the dried varnish shows hairline cracks or blisters. It has been found that the best checking results are obtained with the aid of a source of monochromatic light which reveals inaccuracies in the coating with remarkable clearness. The action of monochromatic light can be enhanced by employing coloring matter having a particularly good covering power within the spectral region of the source of monochromatic light.

Aniline colors are especially suited as additions to the coating varnish, and crystal violet, brilliant green, brilliant fiery red and nigrosin, all products of the I. G. Farbenindustrie, have for instance given satisfactory results.

The possibility of ascertaining defects in the dielectric with the aid of the process described before the dielectric materials are metallized involves considerable cheapening and simplification of the production of condensers or similar electrical apparatus made from such materials. The amount of waste resulting from a poor dielectric in the manufacture of condensers can be much reduced by the application of the process according to the invention.

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