

UNITED STATES PATENT OFFICE

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PROCESS FOR THE TREATMENT OF METALS

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1 Claim. (Cl. 204—1)

It is known that some metals, more particularly aluminum, take on an insulating oxide coating in the air and on anodic treatment. The phenomenon is exploited technically in the production of electrolytic condensers and in the production of coatings of all kinds for protection against corrosion and for electrical insulation. The object of the various treatments is to obtain a homogeneous oxide coating.

It has been found that the production of a coating of this kind is rendered particularly advantageous if certain catalyzing agents are added in small quantities to the solutions or baths employed. These catalyzing agents accelerate the oxidation process and produce a homogeneous coating. As such additions, the salts of iron, of copper and particularly the combinations of vanadium, have shown themselves to be particularly suitable. The composition of the bath for forming the coating may be a known one, for instance an aqueous solution of ammonium phosphate, ammonium borate and so on. A solution of this kind may accordingly have the composition:

10% ammonium phosphate
0.1% ammonium vanadate

Water, glycerine and the like can be taken as the liquid medium.

By this addition, the leakage current of the insulation, the condenser and the electrolytic valve is lessened approximately one-tenth. The same is true for the leakage current when aluminum thus treated is used as an electrode in dry rectifiers, for example in combination with copper sulphide. It is furthermore possible to add the vanadium to the aluminum in small quantities as a constituent part of an alloy, by which, among other things, its corrosion-proof quality is increased.

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

A bath for the anodic treatment of aluminum which contains approximately, 10% ammonium phosphate and 0.1% ammonium vanadate.

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