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METHOD OF APPLYING A SATISFACTORILY ADHERING, POORLY REFLECTING, CONDUCTIVE LAYER TO AN INSULATING SURFACE AND ELECTRIC DISCHARGE TUBE HAVING A LAYER APPLIED BY SAID METHOD

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No Drawing. Continuation of abandoned application Ser. No. 856,160, Sept. 8, 1969. This application Nov. 3, 1971, Ser. No. 195,525
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U.S. Cl. 117—217 2 Claims

ABSTRACT OF THE DISCLOSURE

A smooth, conductive layer of poor reflectivity on an insulating surface is obtained by first applying a chromium-nickel layer from the vapor phase, to which layer is applied a nickel layer which is oxidized by heating in air at 250° C. to 500° C.

This application is a continuation of application Ser. No. 856,160 filed Sept. 8, 1969, now abandoned.

The invention relates to a method of applying a satisfactorily adhering, poorly reflecting, conductive layer to an insulating surface, particularly to the inner wall of an electric discharge tube.

The invention furthermore relates to an electric discharge tube, particularly an image intensifier or a cathode-ray tube provided with a conducting, poorly reflecting layer applied by said method to part of the inner surface of the tube bulb.

From French Patent Specification 806,867 it is known that the reflection of a brilliant metal layer can be reduced by covering it with a black layer, for example, of nickel oxide. The nickel oxide is applied as such, for example, by a suspension.

It is found that such a nickel oxide layer adheres poorly. This is particularly disadvantageous when such a layer is applied in an electric discharge tube, which is heated at a comparatively high temperature during degassing. The nickel oxide layer may then scale off or particles may be released therefrom.

It has been found that a satisfactorily adhering, smooth conductive layer with poor reflection can be applied to an insulating surface when in accordance with the invention the surface is first coated by vapor deposition in vacuo with a chromium-nickel layer, to which a nickel layer is applied from the vapor phase, which is converted at least partly into nickel-oxide by heating in an oxidizing atmosphere. It appears that the layer is conductive, adheres very satisfactorily to the insulating surface and has a reflection of less than 10% of that of a brilliant aluminium layer for light of a wavelength of 5000 to 7000 A.

Such layers are quite suitable for partially covering the inner surface of the glass bulb of an electric discharge tube, particularly of an image intensifier or of a cathode-ray tube. The oxidation of the nickel layer may be performed by heating in air at 250° C. to 500° C. The thickness of the nickel layer may be about 1μ.

What is claimed is:

1. A method of applying a satisfactorily adhering, smooth, conducting layer of poor reflection to an insulating surface comprising the steps of vapor depositing in vacuum a chromium-nickel layer on said surface, thereafter depositing a nickel layer about 1μ thick on said chromium-nickel layer, and heating the nickel layer in an oxidizing atmosphere to partially convert said nickel layer into nickel oxide until the reflection for light of a wave-length between 5000 and 7000 A. is less than 10%.

2. A method as claimed in claim 1 wherein the nickel layer is heated in air at 250° C. to 500° C.

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