

1

2,755,239

SEALING BATHS

Walter Glauser, Zollikon, Zurich, and Max Keller, Basel, Switzerland, assignors to J. R. Geigy A.-G., Basel, Switzerland, a Swiss corporation

No Drawing. Application March 5, 1954,
Serial No. 414,494

Claims priority, application Switzerland March 18, 1953

2 Claims. (Cl. 204—35)

Generally the oxide coating of anodically oxidised aluminium is submitted to a sealing process in order to close the pores. It is only after this sealing that the anodic layer attains its glass-like smoothness and resistance to abrasion and its great protection against corrosion. (M. Schenk, Werkstoff aluminum, Berne, 1948, p. 826.) According to the same author, it is necessary, finally, to subject the treated aluminium goods to a polishing process to remove the deposit which tarnishes the oxide layer and thus make it brilliant. This can be done with a very soft wad of cloth not moving too quickly; in more obstinate cases however, use has to be made of a thin polishing paste such as chrome green, alumina for polishing, etc.

Additives to the sealing baths have now been found which prevent the formation of this coating on the anodically oxidised sealed aluminium. In particular formaldehyde condensation products of aromatic sulphonic acids are suitable for this purpose insofar as they are capable of either dispersing or retaining in solution the basic precipitates which occur in the sealing bath. In this way, these precipitates are prevented from settling on the surface of the aluminium from which they have to be removed by a further process. Aluminium treated according to this new method can be taken from the sealing bath, rinsed, and dried; its surface is pure and is of a brilliancy which up to now could only be attained by the after-treatment mentioned above.

Example

500 g. of nickel acetate crystals, 100 g. of cobalt acetate crystals and 800 g. of boric acid are dissolved in 100 litres of water; 100 g. of the condensation product from naphthalene sulphononic acid and formaldehyde (produced for example according to U. S. Patent No. 1,336,759) are added to this solution. The temperature of the bath

2

is raised to 90–100°, the anodically oxidised, dyed or undyed aluminium is entered and the bath is kept for about 20 minutes either at the boil or almost boiling. The aluminum is then rinsed and dried. Its surface is as brilliant as it was before the sealing operation. Polishing is unnecessary and does not increase the brilliance of the surface at all.

It is not absolutely necessary to keep to the temperatures mentioned in the above example, which temperatures correspond to those used in practice today. It is not disadvantageous to work at lower temperatures. For example, temperatures around 80° produce equally good, if not better results.

Condensation products from formaldehyde and naphthol sulphononic acids, formaldehyde and aromatic polysulphonic acids according to British Patent No. 683,084 can also be used instead of the condensation product from naphthalene sulphononic acid and formaldehyde mentioned in the above example.

As it is known that the content of the sealing bath gradually becomes poorer, nickel and cobalt salts must be added from time to time; this is also true in the case of the formaldehyde condensation products which are added.

What we claim is:

1. In a process for sealing the oxide coating of anodically oxidised aluminium, the improvement which comprises subjecting the anodically oxidised aluminium to the action of a hot water sealing bath in the presence in the bath of a water-soluble formaldehyde condensation product of an aromatic sulphononic acid and of ions selected from the group consisting of nickel and cobalt ions.

2. In a process for sealing the oxide coating of anodically oxidised aluminium, the improvement which comprises subjecting the anodically oxidised aluminium to the action of a hot water sealing bath in the presence in the bath of a water-soluble formaldehyde condensation product of naphthalene sulphononic acid and of ions selected from the group consisting of nickel and cobalt ions.

References Cited in the file of this patent

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