

UNITED STATES PATENT OFFICE.

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PROCESS FOR COATING METALS.

No Drawing.

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This invention relates to a treatment of metals to render them less susceptible to oxidation and corrosion.

The primary object of the invention is to provide a process for the treatment of metals, more particularly of the lighter group of metals such as aluminum and magnesium which will provide a coating of dehydrated sodium silicate, and to subsequently treat the coated metal with a material such as dilute acid to render it neutral to prevent blushing or turning white which would occur if any sodium carbonate or sodium silicate is allowed to remain on the surface.

This invention is an improvement upon our prior Patent No. 1,540,766 dated June 9, 1925, which sets forth the manner in which the protective coating of dehydrated sodium silicate may be applied to metals. It is contemplated, in accordance with the present invention, that the metals treated in accordance with our prior patent should be subsequently treated by dipping or washing them to neutralize the alkalinity of any chemicals which might remain on the surface of the metal in an unstabilized state.

The metal to which the process is to be applied is first treated in accordance with our prior patent with a solution of water soluble sodium silicate which is then dried on the metal and baked at low temperatures so that a coating and impregnation resistant to corrosion is formed on the metal. This process is particularly applicable to aluminum and its alloys. After the baking step as just mentioned, the metal is immersed in either a dilute acid solution such as a two percent hydrochloride or nitric acid solution in water or dipped in a dilute neutral salt solution such as aluminum sulphate. The metal is not allowed to remain in the solution for any appreciable length of time, but is immediately withdrawn and then either washed or dried. The step just mentioned

has the effect of preventing blooming or chalking of the coating and renders the metal coating more permanent and stable. The treatment with a dilute solution as just mentioned will neutralize any alkalinity of any chemicals such as caustic soda or sodium carbonate which may remain after the baking step, and it does not alter the dehydrated film of silicate on the metal.

It is important that the silicate coating applied to the metal should be dried so as to dehydrate the coating before the subsequent step is taken of fixing the coating as just set forth.

We claim:

1. The process of treating metals to form a protective coating thereon, comprising applying a coating of a silicate solution to the metal, dehydrating the coating and subsequently neutralizing the coating by treating with a dilute solution of an acid.

2. The process of treating metals to form a protective coating thereon which prevents oxidization, comprising applying a coating of a water solution of sodium silicate, baking the coated metal and subsequently fixing the coating to prevent blushing.

3. The process of treating light metals and their alloys to form a protective coating thereon, comprising applying a coating of dehydrated silicate of an alkali metal, and subsequently fixing the coating by dipping in a chemical which neutralizes the alkalinity of the coating and prevents blushing.

4. The process of treating light metals and their alloys to form a protective coating thereon, consisting in applying a coating of a soluble silicate of an alkali metal, baking the coating thereon and subsequently fixing the coating to prevent blushing.

In testimony whereof we affix our signatures.

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