

CORROSION RESISTANT, CHROMATE-FREE CONVERSION
COATING FOR MAGNESIUM ALLOYS

ABSTRACT OF THE DISCLOSURE

The present invention relates to a process for forming a chromate-free, corrosion resistant coating on a product formed from magnesium or a magnesium alloy and to a solution used for forming the coating. The solution has phosphate and fluoride ions and contains from 1.0 g/l to 5.0 g/l of an active corrosion inhibitor selected from the group consisting potassium permanganate, sodium tungstate, sodium vanadate, and mixtures thereof. The solution may also containing from 0.1 to 1.0 vol% of a surfactant which reduces reaction time. The solution is maintained at a temperature of 120 to 200 degrees Fahrenheit and has a pH of 5 to 7. The process for forming the coating broadly comprises degreasing the magnesium or magnesium alloy product in a degreasing solution, cleaning the product in a highly alkaline cleaning solution, deoxidizing the product in a deoxidizing solution, and immersing the product in the coating solution for a time period of 15 minutes to 90 minutes.

Figure 1

