

## **Corrosion Resistance of Nanocrystalline Ni-base Alloy Films**

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Electrodeposited nanocrystalline and/or amorphous nickel-base alloys have been investigated as alternatives to chromium substitutes. Specifically, Ni-P and Ni-B alloys have corrosion resistance and wear properties similar to those of chromium plating. As-plated coatings have a hardness of approximately 600~700H<sub>v</sub>, but annealing increases their hardness. The maximum hardness of about 1200H<sub>v</sub>, which is comparable to the hardness of chromium, occurred during post-plating heat treatment.

In this study, corrosion resistance of Ni-P and Ni-B alloy in both the as-plated and heat-treated state from solutions of HNO<sub>3</sub>, HCl, H<sub>2</sub>SO<sub>4</sub> and NaCl have been investigated.