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Brief 65-10162

NASA TECH BRIEF

Electroless Nickel Resist Used in Alkali-Etching of Aluminum

The problem: To provide a resist that would be unaffected by caustic soda applied as a milling or etching agent on aluminum.

The solution: A resist consisting of electroless nickel, which is applied by a chemical reduction process without the use of electric current.

How it's done: The aluminum surface is first cleaned and then imprinted in the desired pattern with acid-resisting lacquer. The uncoated areas of the aluminum are then plated with the electroless nickel, using commercially available prepared solutions or ready-mixed salts. After removal from the plating bath, the part is rinsed and the acid-resisting lacquer is dissolved or stripped from the surface, exposing the pattern to be etched with caustic soda.

Notes:

1. Two basic papers on electroless plating of nickel are: (1) "Deposition of Nickel and Cobalt by Chemical Reduction", Abner Brenner and Grace Riddell, National Bureau of Standards Research Paper RP1835, Vol. 39, November, 1947, and (2) "Electroless Plating Comes of Age", Abner Brenner, Metal Finishing, November–December 1954.
2. Specific inquiries regarding this innovation may be directed to:

   Technology Utilization Officer
   Goddard Space Flight Center
   Greenbelt, Maryland, 20771
   Reference: B65-10162

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: G. T. Schjeldahl Company under contract to Goddard Space Flight Center (GSFC-284)

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