



AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N.Y. 10017

AMS 2417B

Superseding AMS 2417A

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NICKEL-ZINC ALLOY PLATING

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily to prevent corrosion of steel parts which may operate at temperatures up to 900 F (482 C). No diffusion heat treatment of the coating is required.
3. PREPARATION:
 - 3.1 All brazing, forming, machining, and welding shall be completed before parts or assemblies are plated.
 - 3.2 Unless otherwise specified, parts having hardness of Rockwell C 40 or over and which have been ground after heat treatment shall be suitably stress relieved before cleaning for plating. Temperature to which parts are heated shall be such that maximum stress relief is obtained without reducing the hardness of the parts below drawing limits.
 - 3.3 Prior to plating, parts shall have chemically clean surfaces prepared with minimum abrasion, erosion, or pitting; treatments which may produce hydrogen embrittlement shall be avoided.
4. PROCEDURE:
 - 4.1 Nickel Strike: Prior to application of the alloy plate, the parts shall receive a nickel strike.
 - 4.2 Nickel-Zinc Alloy Plate: Unless otherwise specified, consists of the electro-deposition, over the nickel strike, of a nickel-zinc alloy from a suitable electrolyte containing no addition agents which might have a detrimental effect on the properties of the deposited alloy or the basis metal; stress reducing agents shall not be used unless specifically authorized by the purchaser. The alloy plate shall be 16 - 30% nickel and the balance zinc.
 - 4.3 Hydrogen Embrittlement Relief: As soon as possible after plating, washing, and drying, steel parts shall be treated as follows, to remove hydrogen embrittlement due to cleaning and plating.
 - 4.3.1 Carbon and low alloy steel parts having hardness of Rockwell C 36 - 39 shall be heated for 3 hr at $375\text{ F} \pm 25$ ($190.6\text{ C} \pm 14$).
 - 4.3.2 Carbon and low alloy steel parts having hardness of Rockwell C 40 or higher shall be heated for 23 hr at $375\text{ F} \pm 25$ ($190.6\text{ C} \pm 14$).
 - 4.3.3 All corrosion resistant steel parts hardened by heat treatment having hardness of Rockwell C 38 or higher shall be heated for 3 hr at $375\text{ F} \pm 25$ ($190.6\text{ C} \pm 14$).
 - 4.3.4 Parts which would be reduced in hardness below drawing limits by heating to 375 F (190.6 C) shall be heated for 23 hr at $325\text{ F} \pm 25$ ($162.8\text{ C} \pm 14$).

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