

AERONAUTICAL MATERIAL SPECIFICATION

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CHROMIUM PLATING, POROUS

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 improve load-carrying and lubricating characteristics of ferrous parts.
3. TECHNICAL REQUIREMENTS:
 - 3.1 The surfaces of the parts to be plated shall be free from blemishes, pits, and other irregularities.
 - 3.2 Unless otherwise specified, parts, before plating, shall have surface roughness not greater than 10 microinches, rms.
 - 3.3 Unless otherwise specified, parts having hardness higher than Rockwell C 40 and which have been ground after heat treatment shall be suitably stress-relieved before cleaning for plating. Temperatures to which parts are heated shall be such that maximum stress-relief is obtained without reducing hardness of parts below drawing limits.
 - 3.4 When so specified, parts shall be magnetically inspected before plating, and after plating and complete finishing.
 - 3.5 Before placing parts in plating solution, they shall have chemically clean surfaces, prepared with minimum abrasion, erosion, or pitting. The final step in cleaning shall consist of anodically cleaning the parts in a chromic acid solution of concentration approximately equal to that of the chromic acid solution used in plating, or by other methods agreed upon by purchaser and vendor.
 - 3.6 Tight electrical connections shall be made and maintained for satisfactory plating.
 - 3.7 The plating process consists of electrodeposition of chromium from a chromic acid solution containing added sulfate or fluoride ions. Unless otherwise specified, the chromium shall be deposited directly on the basis metal without a flash coating of other metal underneath, except in the case of parts made of corrosion-resistant steel on which a preliminary flash of nickel or other suitable metal is permissible.
 - 3.8 Unless purchaser permits the use of other methods of producing porosity, the current shall be reversed immediately after plating, and the plate partially removed to produce porosity and surface finish as specified in 3.11 and 3.14.
 - 3.9 Unless otherwise specified, immediately following the reversed-current operation of 3.8, parts shall be rinsed in cold water, then immersed in boiling water for not less than one hour, to relieve possible hydrogen embrittlement, and shall then be dried.

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