AERONAUTICAL MATERIAL SPECIFICATION

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PROTECTIVE TREATMENTS FOR ALUMINUM BASE ALLOYS

1. ACKNOWLEDGMENT: A vendor must mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. PREPARATION: To increase corrosion resistance and provide surfaces which will insure maximum paint adherence.

3. PREPARATION: Parts to be treated shall be cleaned, if necessary, in such a manner as to leave the surfaces free from grease, oil, soaps, alkalies, or other contamination. The operation may be accomplished with a hot free-rinsing soap cleaner or by degreasing with an organic solvent.

4. CHROMIC ACID PROCESS: (a) Electrolyte - shall be an aqueous solution of technical grade chromic acid (99.5% minimum CrO_3) of suitable concentration. A chloride content in the solution of the equivalent of 0.2 gram of NaCl per liter on a sulphate content equivalent to 0.5 gram of H_2SO_4 per liter will result in unsatisfactory operation of the process and the solution should be maintained so that an excessive content of Cl or SO_4 will not be present.

(b) Tank Material - The electrolyte may be contained in a tank of steel.

(c) Temperature - The electrolyte shall be operated at 91° - 99° F.

(d) Procedure - The cleaned parts shall be made the anode in the electrolyte contained in a suitable metal tank which also serves as the cathode. Direct current is applied and the voltage raised to 40 volts and held for 30 minutes.

(e) After anodization, all parts shall be well rinsed in water at a temperature of 150 - 185° F to facilitate drying and to harden the anodic film. The rinse should be as thorough as practicable but slight chromic acid stains are not considered objectionable.

5. OTHER PROCESSES: Other processes may be substituted for the chromic acid process if approved.

6. PRECAUTIONS: (a) Surfaces to be painted must be handled with extreme care after anodizing to prevent rupture of the film and contamination by dirt or oil before painting, which should be done as soon after treatment as practicable.

(b) Wire, hooks, racks, or clamps used to suspend the parts in the electrolyte shall be of aluminum or aluminum alloy.

(c) Anodizing baths should be provided with an exhaust system as a protection for the operators and prevention of corrosion of metal equipment in the vicinity.