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AERONAUTICAL MATERIAL SPECIFICATION

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PROTECTIVE TREATMENTS for ALUMINUM BASE ALLOYS

1. PURPOSE: To increase corrosion resistance and provide surfaces which will insure maximum paint adherence.

2. 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.

3. CHROMIC ACID PROCESS: (a)Electrolyte.- Shall be an aqueous solution containing 5 - 10% by weight of technical grade chromic acid (99.5% minimum CrO_3). The chloride content of the solution shall not at any time exceed the equivalent of 0.2 gram of NaCl per liter and the sulphate content shall not at any time exceed the equivalent of 0.5 gram of H_2SO_4 per liter.

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

(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. Wash the treated parts thoroughly in clean, running water then in hot water to facilitate rapid drying.

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

5. 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.

6. APPLICATION: (a)This process is applicable to wrought and cast aluminum and aluminum alloy parts; the choice of process to be used will probably depend primarily upon its availability.

(b)All parts, except engine parts, shall be anodized as a detail after all drilling, forming, etc., is completed.