

PROHIBITED MATERIALS

The use of tin, zinc, and cadmium is prohibited as specified in the following subparagraphs. Any exceptions to these prohibitions shall be approved in advance in writing by Buyer.

- a. **Tin.** The use of pure unalloyed tin is prohibited as a surface finish for space hardware, including the surface finish on components or parts used inside a hermetic cavity or encapsulated within an assembly. (For example, terminations on chip capacitors in hybrids shall not consist of pure tin; the potted portion of leads on devices that are encapsulated shall not be plated with pure tin.) Solder-dipped tin alloy finishes shall contain at least three percent lead or at least three and a half percent silver. All other tin and tin alloy finishes shall contain at least three percent lead.
- b. **Zinc.** The use of pure zinc is prohibited as a surface finish for space hardware. Unplated brass (an alloy containing copper and zinc as the main constituents) containing greater than 21 percent zinc is prohibited. Brass with greater than 21 percent zinc is acceptable if the brass is over-plated with a minimum of 50 microinches of nickel, or 100 microinches of either copper or gold. Unplated alloys other than brass that contain greater than 10 percent zinc are prohibited. Unplated alloys other than brass alloys that contain greater than 10 percent zinc are acceptable if they are over-plated with a minimum of 50 microinches of nickel, or 100 microinches of either copper or gold. Zinc or alloys containing zinc that are sealed within a hermetic cavity are acceptable.
- c. **Cadmium.** The use of pure cadmium is prohibited as a surface finish for space hardware. Unplated alloys containing greater than five percent cadmium are prohibited. Alloys containing greater than five percent cadmium are acceptable if they are over-plated with a minimum of 50 microinches of nickel, or 100 microinches of either copper or gold. Cadmium or alloys containing cadmium that are sealed within a hermetic cavity are acceptable.