

**MIL-C-490A****AMENDMENT-1****11 MARCH 1957****OBSOLETE****MILITARY SPECIFICATION****CLEANING AND PREPARATION OF FERROUS AND ZINC COATED SURFACES FOR ORGANIC PROTECTIVE COATINGS**

*This amendment forms a part of Military Specification MIL-C-490A, 7 May 1954, has been approved by the Department of Defense, and is mandatory for use by the Departments of the Army, the Navy, and the Air Force.*

*Page 1, paragraph 1.2, line 4: After "crystalline" add "zinc".*

*Page 1, paragraph 1.2: After Grade II, Type 6, add "Grade III — An iron phosphate base coating."*

*Page 2, paragraph 3.3, line 2: After "Grade I" insert "and Grade III."*

*Page 2, paragraph 3.10: Delete and substitute:*

**"3.10 Appearance (applicable to Grades I and III only). Coating deposits shall be continuous, uniform in texture and evenly deposited. Grade I shall be gray to black in color and Grade III shall be iridescent, varying from a golden yellow to bluish gray color. The coating shall not be mottled in appearance nor show any evidence of smut, powder, corrosion products, fingerprints, or of white stains due to dried phosphating solutions.**

**There should be a minimum number of contact marks. Nonuniformity of color due to heat treatment, composition of the basic metal, the degree of cold work performed on the basic metal, or the presence of brown or orange stains from the chromic rinse shall not be cause for rejection."**

*Page 3, paragraph 3.11: Delete and substitute:*

**"3.11 Phosphate coating weight. For Grade I (not applicable to incidental nonferrous surfaces) the minimum coating weight shall be 150 mg/sq. ft. for spray processes and 300 mg/sq. ft. for dip processes when tested as specified in 4.2.5. For Grade III processes, the minimum weight shall be 40 mg/sq. ft. when tested as in 4.2.5. Unless otherwise specified, the coating weight shall be tested at least every four hours (see 4.8)."**

*Page 3, paragraph 3.12.4, line 1: After "Grade I" insert "and Grade III."*

*Page 5, paragraph 4.2.4.4, line 2: After "Grade I" insert "and Grade III".*

*Page 5, paragraph 4.2.5, line 2: After "Grade I" insert "and Grade III".*

*Page 5, paragraph 4.3: Delete and substitute:*

**"4.3 Acceptance. Not more than 4 hours production shall be considered acceptable provided that the representative specimens have a minimum coating weight of 150 or 300 mg/sq. ft. depending on the applicable type for Grade I processes and 40 mg/sq. ft. for Grade III processes. If the specimens fail to comply with the minimum coating weight for the specific applicable grade process, further phosphating will be suspended until corrective action has been taken."**

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*Page 6, paragraph 6.1:* Delete and substitute:

**"6.1 Intended use.**

**"6.1.1 Grade I.** Grade I process is intended for use when specified as a surface treatment on metal items which are to be subsequently painted.

**"6.1.2 Grade II.** Grade II processes are intended for cleaning, rust removing, descaling, or surface etching purposes and may be used alone or in conjunction with Grade I or Grade III processes.

**"6.1.3 Grade III.** Grade III process is intended for use on 55-gallon drums and for other end items as specified."

*Page 6, paragraph 6.4:* Add to this paragraph the following:

**"Grade III phosphate coating.** The properly cleaned articles or items should be treated with a balanced aqueous solution containing phosphoric acid or acid phosphate salts, with or without the addition of accelerating agents.

Treatment should be continued until a phosphate coating is produced which is insoluble in water and has a color varying from a golden yellow to a bluish gray. The articles or items should be exposed to the phosphating solution in a spray process for at least 1 minute. The article should then be rinsed in clean water, followed by a second rinse in a dilute chromic acid or a combination chromic and phosphoric acid solution, and dried."

*Page 7, paragraph 6.10, line 1:* After "Grade I" insert "and Grade III".

*Page 7, paragraph 6.12, line 4:* After "Grade I" insert "and Grade III".

**Custodians:**

Army—Ordnance Corps  
Navy—Bureau of Ships  
Air Force

**Other Interests:**

Army—EQSigT  
Navy—MCOY

**Preparing activity:**

Army—Ordnance Corps