

**PLATING, TIN/ZINC ALLOY, ELECTROPLATED,
OVER FERROUS BASE METAL****WSS-M1P95-A1/A4****1. SCOPE**

These specifications define the physical and chemical properties required of a neutral electroplated tin-zinc alloy and its associated hexavalent chromium free passivate in order to provide the requirements of corrosion resistance and electrical conductivity.

All processes are free from hexavalent chromium, lead, and cadmium.

2. APPLICATION

These specifications were released to provide corrosion protective and electrically conductive coatings over steel fasteners and small parts. These coatings are also suitable for fasteners that are formed during installation (e.g. blind rivets, blind anchor nuts) and small non-electrical components.

2.1 SERVICE TEMPERATURE

Due to the low melting point of tin-zinc alloy (197 °C), the maximum service temperature is 190 °C.

These coatings are not recommended for body-in-white parts, parts that will be subsequently electrocoated, or parts subjected to high service temperatures for extended periods.

3. REQUIREMENTS**3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS**

Material suppliers and part producers must conform to the Company's Standard Requirements for Production Materials (WSS-M99P1111-A).

3.0.1 Approved Applicator Quality Requirements

Applicators must follow coating manufacturer procedures and recommendations for chemical usage, equipment, analysis and processing.

3.2 CHEMICAL COMPOSITION BY WEIGHT

TIN	ZINC
65 to 85%	15 to 35%

Date	Action	Revisions
2005 02 03	Activated	Para 3.0, 3.2, 3.4, 3.5, 3.7, 3.8 & 4.2 revised; para 2.1, 3.0.1, 3.7.2, 3.8.1 – 3.8.9 & 3.9 added; title revised on 3.4 & 3.6 D. Droblich
2004 03 17	Revised	Returned to active status, rev para 1, 3.4 and 4.2 B. Curtiss
1999 12 08	Activated	L. Martins, K. Yerdon



3.3 PLATING THICKNESS (ASTM B 487)

Plating thickness requirements represent minimum values and apply to all significant surfaces unless otherwise specified on the engineering drawing.

A1	5 Micrometers
A2	8 Micrometers
A3	10 Micrometers
A4	13 Micrometers

3.4 CORROSION RESISTANCE (SAE/USCAR-1, FLTM BI 123-02, ARL 18-0034)

After completing the specified corrosion cycles, components plated to these specifications must meet the Corporate Standard for corrosion resistance.

Thickness Designation	Salt Spray Hours		APG/APG'E'
	White Corrosion Hours	Red Corrosion Hours	< 1% Red Rust Cycles
A1	48	400	10
A2	48	500	20
A3	48	600	25
A4	48	700	30

3.5 CONDUCTIVITY

Conductivity testing shall be run with production representative parts and finishes assembled in a manner that represents normal assembly practice.

Testing shall be conducted using the Four Terminal Gold Contact measurement method and applying normal hand applied force. The total resistance, including finish, shall be no greater than 1 milliohm.

Any change to this requirement or approved sources requires concurrence of the Electrical Engineering Components group.

3.6 ADHESION (ASTM B 571)

Adhesion of the electro-plate to the base metal must conform to the requirements of the following test methods per ASTM B 571

3.6.1 Grind Saw Test

No lifting or peeling of the substrate is permitted following grind saw test.