



**CORROSION PROTECTIVE COATING, ELECTROLYTIC ZINC PLATE,
TRIVALENT CHROMIUM, TOPCOAT SEALER, INTEGRAL
TORQUE CONTROL LUBRICANT**

WSS-M21P50-A1

**CORROSION PROTECTIVE COATING, MECHANICAL ZINC PLATE,
TRIVALENT CHROMIUM, TOPCOAT SEALER, INTEGRAL
TORQUE CONTROL LUBRICANT**

WSS-M21P50-A2

1. SCOPE

These specifications define the performance of an electrolytic and mechanical plating of zinc, followed by a trivalent chromium conversion, followed by the application of a topcoat sealer.

2. APPLICATION

These specifications were originally released for coatings where resistance to corrosion is required for fasteners.

These coatings are effective for preventing galvanic corrosion of steel fasteners that contact magnesium or aluminum components.

Caution: These coatings are not recommended for severe abrasion conditions or where chip resistance is required.

2.1 SERVICE APPLICATION

2.1.1 The maximum service temperature resistance of these coatings is 120 °C.

2.1.2 Electrical Conductivity

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

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

3.2 APPEARANCE

3.2.1 The plating shall be smooth, fine grained, adherent, and free from blisters, pits, nodules, indications of burning, and other defects. All details of workmanship shall conform to the best practice for high quality plating.

3.2.2 Parts shall have a silver-white color.

Date	Action	Revisions
2007 05 08	Activated	



Documents

A. Cockman

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3.3 PERFORMANCE CHARACTERISTICS

Items to be tested for adhesion, plating thickness, or corrosion testing shall be air cured for 24 h prior to testing.

3.3.1 Adhesion

Parts heated to 100 °C for 30 minutes shall exhibit no blistering, peeling, or flaking of plating that can be removed by a filament type tape. The testing of plate quality by salt spray and/or determination of coating thickness shall be done on parts passing the adhesion test.

3.3.2 Plating Thickness, min 8 micrometers (ASTM B 659, ASTM B 487)

The plating thickness requirement identified above represents the minimum value and applies to all significant surfaces unless otherwise specified on the Engineering Drawing. In case of dispute, the thickness measurement umpire method shall be metallographic sectioning per ASTM B 487.

3.3.3 Corrosion Resistance (SAE/USCAR-1, ASTM B 117)

3.3.3.1 Fasteners shall be tested and evaluated in accordance with SAE/USCAR-1, both in the as-plated, trivalent chromium and sealed condition (as-processed) and after being held at 120 °C for 4 hours (baked), and shall pass the number of hours specified in the table below. See WX100 for additional information.

3.3.3.2 Parts other than fasteners shall be tested in accordance with ASTM B117, both in the as-plated, trivalent chromium and sealed condition (as processed) and after being held at 120 °C for 4 hours (baked). Parts shall show no single ferrous corrosion spot larger than 1.5 mm in diameter, and shall not exhibit ferrous corrosion overall exceeding 0.1%, per ASTM D 610, grade 8, after the number of test hours specified in the table below.

	WHITE CORROSION		RED CORROSION	
	As-Processed	Baked	As-Processed	Baked
A1	96	72	384	360
A2	96	72	240	216