



FASTENER FINISH, ANIONIC EPOXY ELECTROCOAT, BLACK

WSS-M21P41-A

FASTENER FINISH, CATIONIC EPOXY ELECTROCOAT, BLACK

WSS-M21P41-A2

1. SCOPE

The materials defined by this specification are corrosion protective coatings applied anionically or cationically per supplier specifications over various base coats over steel substrates. They consist of a zinc phosphate pretreatment, either an anodic epoxy electrocoat or a cathodic epoxy electrocoat, and an integrally cured torque modified post dip to provide consistent torque-tension control. Both processes provide enhanced corrosion resistance.

Both processes are free of nickel, chromium, lead and cadmium.

2. APPLICATION

These specifications were released for materials used as corrosion protective coatings for fasteners and other standard parts used throughout the vehicle. Since the processes do not induce hydrogen embrittlement, these coating are suitable for high hardness parts. The cure temperature of the anodic system is 175 - 200 °C and the cure temperature of the cathodic system is 175 - 200 °C.

These coatings shall not be specified if this temperature adversely affects the component being coated.

2.1 SERVICE TEMPERATURE

The maximum continuous service temperature for A is 260 °C.

The maximum continuous service temperature for A2 is 260 °C.

3. REQUIREMENTS

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

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

3.2 LICENSEE APPLICATOR QUALITY REQUIREMENTS

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

Date	Action	Revisions	Rev 02
2014 02 21	Editorial	See Summary of Revisions	G. Weber, NA
2014 01 02	Revised	Editorial updates – See Summary of Revisions	G. Weber, NA
2003 10 13	Activated		D. Drobniach



3.3 APPEARANCE

3.3.1 The anodic coating will be a flat black finish and free from discontinuities.

3.3.2 The cathodic coating will be a semi-gloss black finish free from discontinuities.

3.4 COATING THICKNESS

A specific topcoat thickness is not specified. The minimum thickness shall be sufficient to meet the corrosion requirements of the substrate material. A typical film build that exhibits the appropriate corrosion resistance for A is 7.5 to 15.0 micrometers in thickness and for A2 is 12.7 to 20.0 micrometers. Excessive coating thickness on threaded components may cause assembly concerns. The general requirements of the Ford Worldwide Fastener Standards, Finish Specification WX100, Section 5 apply to this coating.

3.5 THREAD ACCEPTANCE REQUIREMENTS

(WA900, WE900, WX100)

For thread acceptance requirements see Ford Worldwide Fastener Standards WA900, WE900 and WX100.

3.6 CURING

The coating shall be cured 20 minutes at a metal temperature of 175 - 200 °C (350 - 400 °F) and shall not be used on materials that are adversely affected by these metal temperatures. This is consistent with both A and A2.

3.7 CLEANING

Prior to coating, the substrate shall be free of oil, dirt, and similar foreign materials. If a cleaning process is necessary, it shall have no detrimental effect on the substrate, including freedom from embrittlement. See WSS-M99A3-A. All parts shall be zinc phosphated with a product to produce a minimum of 6 grams per square meter (600 mg/ft²) of coating on fasteners.

3.8 ADHESION

The coating shall withstand normal handling, storage, and installation without flaking or peeling or other loss of adhesion.

3.9 TORQUE TENSION

(WZ101)

The coatings shall meet the torque and friction coefficient specified in Table 1.