



PHOSPHATE COATING, ZINC

WSK-M3P1-C

1. SCOPE

This specification defines the performance requirements of a zinc phosphate coating on automotive parts which are subsequently painted.

2. APPLICATION

This specification was released originally for phosphate coatings used for iron, steel, zinc or zinc alloy coated steel or zinc parts where maximum paint adhesion and corrosion resistance are required. It is to be used for aluminum only when processed concurrently with steel parts. This use is subject to the tolerance limit of the specific phosphate process for aluminum, provided that both aluminum and steel parts processed concurrently, meet all requirements of this specification. The coating provides a clean grease-free surface for painting, improves adhesion of the paint film and inhibits spread of corrosion when the paint film is broken.

Substrate limitations of zinc phosphate coatings approved under this specification are as follows:

Type I Iron and Steel

Type II Iron, Steel and Zinc or Zinc Alloy Coated Steel

Type III Iron, Steel, Zinc or Zinc Alloy Coated Steel and Aluminum

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).

3.3 PHYSICAL PROPERTIES

3.3.1 Coating Weight * (FLTM AQ 101-01 or 101-02)

The coating weights as defined below must only be used with the materials described.

Note: When phosphate solutions with high Nickel or Manganese contents are in use, the chromic acid test (FLTM AQ 101-01) should be used.

3.3.1.1 Coating Weights for Dip Systems

Cold Rolled Steel	1.8 - 3.3 g/m ²
Zinc Coated Steel	2.8 - 4.0 g/m ²

Date	Action	Revisions
2003 08 29	Revised	Para 3.0 inserted; Para 3.6 & 4 deleted
1995 05 17	Revised	Para 3.3.1.2
1990 02 01	C01031532	Released





3.3.1.2 Coating Weight for Spray Systems

Cold Rolled Steel	1.5 - 3.0 g/m ²
Zinc Coated Steel	2.5 - 4.0 g/m ²
Hot Rolled Steel	1.5 - 3.0 g/m ²

* Coating weight requirements are not applicable to aluminum.

3.4 PREPARATION OF TEST PANELS

In order to eliminate variables in testing production parts, tests shall be conducted on standard test panels prepared in accordance with Ford Manufacturing Standard U-MA001-8001 and relevant precoated steel substrates in current production quality according to para. 3.3.1. Sufficient panels must be prepared representing both high and low coating weight deposition within each described range.

3.4.1 Phosphate Coat

Process panels through complete cycle of phosphate coating system under test, including cleaning, crystal refinement, phosphating, passivation, deionized water final rinse and drying.

Panels processed to this point shall be used for coating weight determination, para. 3.3.1. Panels for paint adhesion and resistance tests shall be further processed as indicated in para. 3.4.2.

3.4.2 Paint System

Apply paint system as used in production with electrocoat primer, primer surfacer and white top coat. Materials shall be applied, baked and aged in accordance with individual material specifications.

3.5 RESISTANCE PROPERTIES

Note: If single side precoated steel is used in production, perform resistance tests on both sides of test panels which have been painted according 3.4.2 before testing.

3.5.1	Adhesion (FLTM BI 106-01, Method B)	Rating 0
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3.5.2	Stone Chip Resistance, max. (FLTM BI 157-04)	Rating 3
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3.5.3	Water Immersion Test, min. (FLTM BI 104-01)	240 h
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No failure of panel prepared as in para 3.4 at 32 +/- 1 °C. Failure shall be defined as blisters, permanent change of appearance or loss of adhesion.

3.5.4	Salt Spray Test, min. (FLTM BI 103-01)	480 h
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Test to be performed on iron and steel substrates only. Scribe panels after painting.

No failure of panel prepared as in para 3.4. Failure shall be defined as blisters, rust or loss of adhesion exceeding 3 mm from scribe line.

