



CORROSION PROTECTIVE COATING, LUBRICATED ACRYLIC TOPCOAT, CLEAR

WSS-M21P43-A

1. SCOPE

The material defined by this specification is a protective, acrylic, cationic topcoat applied over various coatings over steel. It consists of a clear, waterborne, acrylic resin and associated make-up feed components, which are applied and cured in an oven. This cured coating provides a barrier layer for increased protection from ultraviolet radiation, lubricity for consistent torque-tension control, and enhanced durability against part handling.

In both bulk liquid and dry film, it is free of chromium, nickel, lead, and cadmium.

2. APPLICATION

This specification was originally released as a secondary barrier layer for corrosion protection coatings applied over steel fasteners exposed to direct sunlight. Per paragraph 3.4 of this specification, adhesion of this acrylic topcoat was tested over the fastener finish defined by specification WSS-M21P37-A1/A2. When applying this material over other coatings, intercoat adhesion shall be tested.

This topcoat is suitable for parts exposed to direct sunlight. Since hydrogen embrittlement is not induced by the process, this coating is suitable for high hardness parts. The cure temperature of the acrylic is 175 °C to 190 °C.

This coating shall not be specified if this temperature adversely affects the part being coated.

2.1 SERVICE TEMPERATURE

The maximum continuous service temperature resistance of the material is 200 °C.

3. REQUIREMENTS

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 LICENSEE APPLICATOR QUALITY REQUIREMENTS

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

3.3 MATERIAL PERFORMANCE

3.3.1 Raw Material Storage Stability

The material must be capable of being stored at 23 ± 2 °C for 60 days without detrimental effect to the performance of the coated parts.

Date	Action	Revisions
2008 08 19	Activated	D. Drobnich, FNA, D. Nymberg, FNA

Documents

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3.3.2 Cleaning

Prior to coating, the parts shall be free of oil, scale, and similar foreign materials. Any cleaning process shall have no detrimental effect on the basecoat or substrate, including freedom from embrittlement.

3.3.3 Curing

The coating shall be cured 20 minutes at a metal temperature of 175 °C to 190 °C and shall not be used on materials that are adversely affected by these metal temperatures. Parts must be sufficiently cured at the time of packing to withstand normal handling and shipping without marring. ASTM D 5402-06 Method A may be used to test coating for cure; for fasteners, test the surface defined in ISO 4042, paragraph 10.1, instead of the surface defined in paragraphs 6.2 and 6.3 of ASTM D 5402-06.

3.3.4 Finished Condition

Parts must be dry to the touch such that, when held with a Watman's No.41 filter paper, or equivalent, and applying hand pressure for 5 to 10 seconds, there shall be no visible staining of the filter paper when viewed without using supplementary magnification. For referee purposes, this test shall be carried out using a force of 10N.

3.3.5 Appearance

The coating shall be transparent and may have a different gloss from the basecoat.

3.3.6 Storage Life

Parts supplied shall still meet the requirements of this specification 6 months after receipt by Ford when stored at 5 °C to 28 °C with no direct heat or sunlight.

3.4 ADHESION

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

Parts heated to 120 °C for 60 minutes shall not exhibit blistering, peeling, flaking or coating which can be removed by a filament type tape, such as 3M No. 898-2. The testing of coating quality by salt spray and/or determination of coating thickness will be done on parts passing the adhesion test.

3.5 RESISTANCE PROPERTIES

3.5.1 Corrosion Resistance

This material shall be tested and evaluated in accordance with the corrosion requirements defined in the basecoat material specification. This material must not diminish the corrosion protection of the basecoat.

In the event that the basecoat material specification does not identify corrosion requirements, then, for fasteners, this material shall be tested according to the 'General Requirements' of WX100.

3.5.2 Water Resistance (FLTM BI 104-01)

Shall not blister or show any signs of red rust when subjected to immersion in water for 240 hours.