Ford Motor Company

ENGINEERING MATERIAL SPECIFICATION

Material Name	Specification Number
PAINT, WATERBORNE CATIONIC EPOXY ELECTROCOAT PRIMER, INITIAL FILL	**WSS-M64J40-A1**
MAKEUP FEED, WATERBORNE CATIONIC EPOXY ELECTROCOAT, RESIN	**WSS-M64J40-A2**
MAKEUP FEED, WATERBORNE CATIONIC EPOXY ELECTROCOAT, PIGMENT, BLACK	**WSS-M64J40-A3**
FLOW CONTROL ADDITIVE	**WSS-M64J40-A4**

1. SCOPE

The materials defined by these specifications are heat curing, water-borne epoxy electrocoat primers and associated makeup feed components feed applied by the cathodic deposition process.

2. APPLICATION

These specifications were released originally for a paint system which, when properly electrodeposited will provide good corrosion resistance and adhesion for underbody components such as frames/subframes and suspension members.

Components painted to this specification are not generally top coated and must have minimal direct ultraviolet light exposure.

WSS-M64J40-A1: This primer is applied directly over zinc phosphate coated hot or cold rolled steel. Although the original intent of this specification is to provide corrosion protection to non-precoated steel material, electrodeposited zinc or zinc/zinc alloy coated steel and any other type of steel classified as precoated can be painted to this specification.

WSS-M64J40-A2: This material is make-up feed material used to replenish the resins of the initial fill electrocoat bath.

WSS-M64J40-A3: This material is make-up feed material used to replenish the pigments of the initial fill electrocoat bath.

WSS-M64J40-A4 are make-up feed materials that correct poor flow characteristics of the primer which may develop when the bath ages. This additive is used only as recommended by the supplier following ultrafiltrate purge or when discontinuous operation of an electrocoat tank results in evaporation of bath volatiles.

Date	Action	Revisions	
2002 12 05	Revised	Rev para 3.5.1.1, updated and renumbered	R. Lord
2000 10 26	Revised	Rev para 3.5, 3.7, 3.9, 3.10 & updated	T. Horoszy
1999 09 02	Activated		T. Horoszy

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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 MATERIAL COMPATIBILITY

The supplier of this material shall keep abreast of changes in technology of related materials e.g., sealers and adhesives, which may affect the compatibility and performance of this product. The supplier shall notify the appropriate Ford Product Materials Engineering Office in writing when incompatibility is anticipated.

3.3 COMPOSITION

3.3.1 Density, kg/L at 25 °C
(ASTM D 1475)

The density of the materials defined by these specifications shall be within +/- .05 % of that shown on the Initial Sample Report.

3.3.2 Non-volatile, wt %
(FLTM BI 102-01)

The non-volatile content of the material types specified by these specifications shall match the values shown on the initial sample report within +/- 1 %.

3.3.3 Weight Loss, max
(FLTM BI 120-15, after 20 minutes
at 163 +/- 2 °C metal temperature
bake cycle)

Initial Fill and Assembly Plant Electrocoat Tank Material	15.0 %

3.3.4 Solvent Emissions, max
(ASTM D 3960)

0.1 kg/L of wet paint

This requirement is as determined by the United States Environmental Protection Agency Reference Method #24 but is only applicable to materials used in the USA.

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3.4 STABILITY

3.4.1 Pumping Stability
(FLTM BI 120-04)

After 21 days minimum agitation, the bath prepared from the initial fill or feed materials shall meet all requirements of the specification.

3.4.2 Storage Stability 2 months

During a storage of 2 months between 5 and 32 °C temperature the material as supplied shall not settle or cake.

3.5 PREPARATION OF TEST PANELS

Prepare panels per FLTM BI 120-01 with the exceptions noted below:

The substrates used shall be as follows, (ref. para. 4.1):

Standard Steel Panel - Hot Rolled Low Carbon Steel P&O (HRLC P&O) or as designated by the responsible Product Materials Engineering Department.

The electrocoat bath temperature should be maintained at 27 +/- 2 °C or as recommended by the supplier during the coating process.

All substrates shall be zinc phosphated and conform to the requirements of WSS-M3P1-D.

3.5.1 Paint Film Build

3.5.1.1 Thickness 0.020 - 0.025 mm
(FLTM BI 117-01)

3.5.2 Bake Requirements

Coatings shall meet the requirements of para. 3.5 when painted at the following bake times & temperatures.

Standard – Bake at paint suppliers' recommended minimum bake time & temperature

Undercure - Bake at 14 °C below paint suppliers' recommended minimum bake time & temperature.

Overbake - Bake at 14 °C above paint suppliers' recommended minimum bake time & temperature.

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