Ford Motor Company

# ENGINEERING MATERIAL SPECIFICATION

| Material Name | Specification Number |
|---|---|
| **STEEL SHEET, TERNE COATED (TERNE PLATE)** | **WSD-M1A286-A1**<br>**WSD-M1A286-A2**<br>**WSD-M1A286-A3** |

## 1. SCOPE

The materials defined by these specifications are low carbon steels which have been coated with a lead tin alloy (terne) using an electrolytic or hot dipping technique. A thin layer of electroplated nickel, often referred to as a nickel flash, may be applied to the base steel prior to the terne. Material intentionally supplied with a different thickness of coating from one side to the other shall have the thinner side identified. The coated sheet shall be capable of being satisfactorily painted, welded or soldered in production.

## 2. APPLICATION

These specifications were released originally for use in the manufacture of fuel tank bodies, fuel filler neck tubes and radiator side supports (side walls), the exteriors of which may be subsequently painted. The use of nickel flash terne plate should be considered for a coating of minimal porosity.

CAUTION: The cleaning of the substrate steel is the most important feature governing successful coating.

## 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 BASE MATERIAL

The chemical composition shall be of a low carbon steel. Steel with surface laminations or other surface defects which will prevent good adhesion of the coating shall be rejected.

### 3.3 COATED PRODUCT

#### 3.3.1 APPEARANCE

The terne coating shall be continuous and free from surface defects such as blisters, deep scratches and imperfectly coated areas.

| Date | Action | Revisions |
|---|---|---|
| | | |
| 2002 09 30 | Revised | Updated and renumbered |
| 1986 11 05 | SM/ER4172TC | Released. K J Thurgood. EAO. |



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3.3.2 NICKEL FLASH

Where a nickel flash is employed, complete coverage of electroplated nickel is mandatory.

For A3, a nickel flash is mandatory.

3.3.3 COATING MASS - TRIPLE SPOT TEST (ASTM A 309) 60 to 210 g/m$^2$

The mass of coating is the total amount on both sides of a sheet. The coating mass shall be determined using ASTM A 309 - Procedure D except strip one side, weigh to obtain the coating mass and repeat for other side. The result shall consist of the average of determinations from three specimens cut from the test sheet or coil, one specimen cut from the middle of the width and one from each side not closer than 50 mm from the coil side edge. No one spot shall be less than 40 g/m2/side.

3.3.4 FORMABILITY

The quality level of the coated sheet supplied to fabricate a specific component is to be negotiated between the manufacturing activity and the terne coat supplier. Acceptance of subsequent orders by the terne plate supplier, for a given component at the agreed quality level, implies that all terne coat supplied will be of a comparable quality level and will form that part satisfactorily as defined by the manufacturing activity.

3.3.5 JOINING

The coated sheet shall be capable of being satisfactorily welded or soldered in production (see also para 4.4).

3.3.6 ASSESSMENT OF COATING POROSITY

Four test panels, measuring 300 x 300 mm, shall be cut from a consignment or coil. No test panel shall be taken from the top or bottom sheet in a pre-cut stack or sheets cut from the 5 metre length at either end of a coil. These test panels shall be identified when sampled directly from a coil, so that they may be related back to the faces of that coil.



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