Ford Motor Company

FORD LABORATORY TEST METHOD BI 120-02

DETERMINATION OF "THROWING POWER" OF ELECTROCOATING MATERIALS

Application

This test is used to determine the ability of electrocoating materials to extend a protective coating into recessed areas.

Apparatus and Materials Required

Power Source

Zero to 1000 Volt DC
Zero to 10 Amp.

Note 1: The maximum peak to peak value of the primary AC ripple must not exceed 10 % of the indicated coating voltage.

Note 2: Equipment having a lower voltage range may be used providing voltages higher than the maximum required by the materials are available.

Coating Tank

Cylindrical non-conducting, acid resistant container, e.g. glass, having a minimum internal diameter of approximately 150 mm and a height of approximately 320 mm.

Laboratory Stirrer (Acid Resistant)

Zero to 700 rpm, electrically insulated shaft of suitable design to give adequate circulation.

Throwing Power Box (See Drawing)

This is an open ended box made using two 105 x 300 mm test panels and two insulated acid resistant strips 10 x 4 x 300 mm. The strips are inserted between the edges of the panels which are then fixed together using waterproof insulating tape or clips to prevent deposition beneath the strips. The cathode holder shall have dimensions giving satisfactory electrical contact with both test panels.

Date	Action	Revisions
2001 03 19	Revised	Editorial – no technical change A. Cockman
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Test Panels and Anode

Ford Quality Control approved test panels UMA0018005 - (phosphated) or as specified in the relevant material specification.

The two panels are electrically connected by a conducting bridge using crocodile clips. Phosphate coated panels must be dried at 105 °C (metal temperature) for 3 minutes minimum, stored in a desiccator up to 24 hours or used within 1 hour.

Note: Alternative panels may be used for special test purposes, e.g. Plant phosphated panels, after notification and agreement with Quality Control.

The type of phosphate and coating weight used must be stated. This coating must be in accordance with WSK-M3P1-C unless otherwise stated in the material specification.

Thermostat

Capable of controlling bath temperature to +/- 2 °C.

Note: A coolant system is necessary to maintain the bath at 20 °C or as currently used in production. The cooling tube must be acid resistant.

Mechanical Convection Oven

Capable of maintaining temperatures up to 200 °C within +/- 2 °C.

Low Conductivity Water

Conductivity must not be greater than 10 uS/cm at 20 °C.

Electrode Holder (Insulating Material)

To support cathode (test box) and anode panel (105 x 300 mm) parallel to each other and 50 mm apart.

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

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