Ford Motor Company

FORD LABORATORY TEST METHOD EU-BI 057-02

STONE CHIP RESISTANCE TEST

Application

This test method is used to determine the resistance of painted finishes on metal and plastic parts to stone chipping.

Apparatus and Materials Required

Stone Chip Resistance Tester

According to VDA Mod. 508

Source: Erichsen GmbH & Co. KG
D-5870 Hemer Sundwig
Germany

Supplier: Pearson-Panke Equipment Ltd.
1-3 Halegrove Gardens
London NW7 3LR

Chilled Iron Grit "Diamant"

Angular, 4 - 5 mm in size, rust free.

Source: Eisenwerke Wurth GmbH
7101 Bad Friedrichshall/Jagstfeld

Copper Sulphate Solution 5 %

Containing 2 - 3 % concentrated sulfuric acid.

Test Panels

Plane surface, prepared and painted in accordance with the relevant material specification, dimensions minimum 100 x 100 mm, coating thickness determined according to BI 117-01 or as otherwise specified.

Evaluation Standards

4 colour photographs.

Source: Central Laboratory
Ford Werke AG
Koln-Niehl
West Germany

Date	Action	Revisions
2001 03 13	Revised	Editorial – no technical change A. Cockman
1994 02 28		

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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.

Procedure

Method A - For all materials except plastics as the substrate material.

1. Age test panels according to the relevant material specification.

2. Shot blast the test panels for a maximum of 10 seconds with 750 g of the shot using an air pressure of 0.1 MN/m^2 (setting) at 23 +/- 3 °C.

3. Expose test panels to salt spray test according to BI 103-01 for 72 h or as otherwise specified.

4. Rinse with water, dry with dry compressed air and condition for a maximum of 1 h at 23 +/- 2 °C.

5. Repeat Stage 2 and dry with dry compressed air.

Method B - For plastic substrates.

As for Method A, except item 3 where test panels should be exposed for 72 h to water immersion test according to FLTM BI 104-01.

Evaluation

Only removal of coating down to substrate (steel or plastic panels) is to be noted. To help in the evaluation, when the test panels are steel, immerse panel in the copper sulphate solution for 10 minutes at 23 +/- 2 °C and note copper covered areas.

Note:

1. For special tests (e.g. Initial Sample) perform the test in triplicate and average the results. This is to minimize variations in test results.

2. The stone chip resistance tester must be checked periodically for effectiveness. If necessary the air pressure should be adjusted to bring in line with the results found with the equipment held by the Materials Laboratory of Product Engineering.

3. To avoid aerodynamic resistance ensure that the end of the flexible outlet has a ground clearness of at least 50 mm.

4. Discard shot and replace by new unused shot after using 100 times.

Chemicals, materials, parts, and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.

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