Ford Motor Company

FORD LABORATORY TEST METHOD BJ 107-03

HUMIDITY TEST FOR RUST PREVENTIVE COMPOUNDS

Application

This procedure is used to test the corrosion protection given to steel panels when treated with a rust preventive compound and subjected to conditions of high humidity and an elevated temperature. This test is generally used for coolants, mild rust inhibitors and cleaners which have rust preventive properties.

Apparatus Required

Humidity Cabinet

The humidity cabinet required for this test shall be capable of maintaining an atmosphere in the test chamber of 95 - 100 % relative humidity and a temperature of 38 +/- 1 °C. Refer to FLTM BQ 104-02.

Evaluation Grid

A transparent grid* of pliable plastic, marked off in 6.4 mm squares, is used to determine the amount of corrosion on the test specimens. The standard grid shall be rectangular in shape and shall contain 100 6.4 mm squares (the lines marking the squares shall not exceed 0.13 mm in width). The percent of corrosion is determined by placing the grid in firm contact with the surface of the test specimen and counting the grid units containing corrosion concerns.

* A convenient grid size for overall evaluation is 64 x 64 mm.

Illumination for Evaluating Test Results

Fluorescent daylight white.
645-860 lux at area where examination of part is being performed.

Glass Hooks

Suitable for hanging the panels.

Materials Required

Steel Panels

Refer to FLTM BJ 106-01.

Date	Action	Revisions
2001 07 24	Revised	Editorial – no technical change A. Cockman
1990 05 14		

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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

1. Prepare five steel test panels by solvent cleaning as described in FLTM BJ 106-01.

2. Immerse two panels into an approved sample of the rust preventive compound as a control and two panels into the sample submitted for test.

   . Immersion time shall be 15 - 20 s to obtain complete wetting of the panel.

   . One panel is left untreated but carried through the exposure period for comparison with the treated panels.

3. Hang the panels from glass hooks for 4 h at 23 +/- 2 °C.

4. Hang the panels in the humidity cabinet at 38 +/- 1 °C and a relative humidity of 95 - 100 % for the time required by the applicable Engineering Material Specification or the Manufacturing Standard.

5. At the end of the exposure period, examine the panels for corrosion and evaluate as follows:

   . Lay the transparent grid containing 6.4 mm squares over the part and squares containing one or more concerns (i.e., corrosion). Do this for the entire surface.

   . Divide the number of 6.4 mm squares containing concerns by the total number of squares covering the surface. This figure x 100 = percent overall corrosion.

   EXAMPLE: With a panel that has 183 squares and if the number of squares containing one or more concerns was 35, then

   $\frac{35}{183} \times 100 = 19.1$ % overall corrosion

6. Report results of the test based upon comparison of the test material with the approved sample. If no corrosion is evident on the untreated panel, the test shall be rerun.

   EXAMPLE:

Panel with test material	Panel with approved material	Untreated panel
20 % corrosion	2 % corrosion	100 % corrosion

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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