Ford Motor Company

FORD LABORATORY TEST METHOD BI 107-02

DETERMINATION OF COLD CHECKING RESISTANCE TO EXTERIOR AUTOMOTIVE TOPCOATS

Application

This method is used to evaluate the resistance of paint films to cold checking when subjected to thermal stresses.

Apparatus and Materials Required

Humidity Cabinet

Cabinet shall be capable of maintaining 100 % relative humidity and a temperature of 38 +/- 2 °C (FLTM BQ 104-02).

Mechanical Convection Oven

Oven shall be capable of maintaining temperatures up to 190 +/- 2 °C.

Cold Box (minimum size - 0.1 m^3)

The cold box shall have the capability of maintaining a temperature of –30 +/- 2 °C. A box with door opening at the top is preferable in order to minimize rapid changes in box temperature while panels are placed inside.

Paint Thickness Measuring Device

According to FLTM BI 117-01 - Permascope with constant pressure probe or equivalent.

Sources (or approved alternative):

The Paul N. Gardner Company (Gardco)
www.gardco.com

Helmut Fischer GMBH & Company
www.helmut-fischer.com

Date	Action	Revisions
2001 07 23	Revised	Rev para 2 and 2B on page 2 R. Moore
1990 02 16		

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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.

Preparation of Test Panels

1. Steel Test Panels

Test panel preparation must conform to FLTM BI 103-02 or as specified in the applicable Engineering Material Specification.

2. Primer/Enamel

A. Electrocoat Primer

Coat panels with the current production electrocoat primer applied at the assembly plant or as specified in the Engineering Material Specification.

There will be no wiping or sanding of the electrocoat primer.

B. Primer Surfacer

Using panels from Para A as required, apply current production spray primer to a dry film thickness of 25 micrometers (30-40 micrometers for high stone resistant primers) and bake as specified in the Engineering Material Specification.

There will be no wiping or sanding of the Primer Surfacer.

C. Procedure for Use of Conventional Enamels

Using three primed panels from Para B, apply enamel by spray to a dry film thickness of 38 - 51 micrometers. Bake one panel each at the minimum bake, standard bake and maximum bake as specified in the Engineering Material Specification.

There will be no wiping or sanding of the enamel.

Repeat the procedure until the required total film thickness is achieved using no more than 3 repair coats on each panel.

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