FILIFORM CORROSION TEST

Application

This procedure is used to evaluate comparatively the filiform corrosion resistance of fully or partially painted, clear coated aluminum wheel surfaces.

Apparatus Required

Controlled Atmosphere Chamber

For construction of the controlled atmosphere chamber refer to Figure 1.

Large round jar (a) or desiccator (b):

(a) Jar, cylindrical, plain, Pyrex brand, O.D. 305 mm, height 305 mm.
(b) Desiccator, body only, Pyrex brand, 250 mm size.

Polycarbonate Cover

6 mm thick to fit jar or desiccator

Small Gearmotor

Model CA, 150 to 400 rpm, or equivalent.

Source: Hurst Mfg. Corp.
P. O. Box 326
Princeton, Indiana 47670-0326
Tel: (812) 385-2564
Fax: (812) 386-7504

Note: Gearmotor should be reversible. During operation of the test, more uniform results are obtained if the stirring rotor direction is changed about every five minutes. This can be done automatically with an external timer/single pole-double throw switch arrangement such as:

Source: Model CMS
Industrial Timer Corporation
U.S. Highway 287
Parsippany, NJ 07054

Polycarbonate Sheet

Thickness: 1.6 mm or less

Polycarbonate Rod

50 mm length, 18 mm diameter, for rotor

Wide Mouth Dish

For HCl; 100 mm watch glass

Date	Action	Revisions
2005 03 22	Revised	Updated Procedure and revised Film Thickness Gauge M. Kelly
2001 11 14	Revised	Rev Apparatus and Procedure M. Kelly, K. Bruley
1999 01 26		

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Scriber

Carbide Tip, Model 90C

Sources: Aircraft Specialties, Inc. (#90C)
415-T Howard St.
P. O. Box 98
Lapeer, Michigan 48446
Tel: (810) 664-2981
Fax: (810) 664-2730

GTS (#CM88)
12015 Telegraph
Detroit, Michigan 48239
Tel: (313) 531-7666

Film Thickness Gauge

Oxford Instrument or equivalent
Model CMI700-ED51

Source: Coating Measurement
945 Busse Road.
Elk Grove Village, IL 60007
Tel: (847) 439-4404 ext 302
Fax: (847) 439-4425
Email: sales@oicm.com

Weather-Ometer

Controlled Irradiance Water-cooled Xenon Arc Apparatus per SAE J1960.

Source: Atlas Electric Devices Company
4114 North Ravenswood Avenue
Chicago, Illinois 60613
Tel: (773) 327-4520

Environmental Cabinet

Temperature/Humidity Chamber with 24-h recorder or equivalent

Source: Thermotron Industries
291 Kollen Park Drive
Holland, Michigan 49423
(616) 392-1492

Materials Required

Distilled Water or Deionized Water

20 micro ohms/cm at 25 °C maximum conductivity (ASTM D 1125)

Hydrochloric Acid

Concentrated, 12N minimum

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