

**HOLDEN**

Holden Limited
Engineering Department

LABORATORY TEST METHOD

NUMBER : HN 0201
SHEET : 1 of 2
RELEASE : September, 1982
REVISION :

NAME: CRYSTAL SIZE DETERMINATION USING "FAXFILM" REPLICATION

1. GENERAL DESCRIPTION

This method outlines the procedure required to obtain an estimating of the crystal size of zinc phosphate coatings on metal substrates using the "Faxfilm" replication technique. The replicas are examined by microscope to estimate crystal size. This method is derived from Fisher Body Test Method 55-36.

2. EQUIPMENT REQUIRED

- A. "Faxfilm" Replicating Solution, N-7.
- B. "Faxfilm" Replicating Tape #3005
- C. "Faxfilm" Viewing Frames #7070

A, B & C may be obtained from Ladd Research Industries, P.O. Box 901, Burlington, Vt. 05401.

- D. Microscope - Bausch & Lomb - 50 to 200 x Zoom, Model ST Z203. Available from VWR Scientific, 3140 Grand River, Detroit, MI. VWR #40923-057 Microscope Illuminator - Bausch & Lomb Rite-Lite #31-33-10. Not in VWR catalog but can be obtained from them using the B.& L. number.

- E. Crystal Size Standards - Obtain from GMH Central Laboratory.

3. PROCEDURE

- A. Cut off an appropriate length of replicating tape (approx. 20mm long).
- B. Brush a drop or two of replicating solution on the surface to be tested. The metal should not be hot or the solution will be dry before the tape can be applied.
- C. Press the replicating tape firmly on the solution-coated area. Be careful to apply the tape so as to squeeze out air bubbles.

Note: As it comes from the roll, the film has a slight natural bow to it. Apply the tape with the bowed side up.

- D. Allow the tape to dry from one to three minutes before stripping.

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3. PROCEDURE (continued)

- E. Strip the replica from the surface slowly. The replica should strip cleanly from the surface leaving no residue. Phosphate should not be stripped from the substrate. If any residue of replicating material is left on the surface, wipe it off with lacquer thinner before painting.
- F. Mount the replica in viewing frame and glue the frame together to hold the replica firmly in place. Label the viewing frame with proper identification - --- date, time, location, operation, conditions, etc.
- G. The replica can be examined with a microscope. Magnification of 200 is required to obtain large enough image to measure smaller crystals. Adjust the lighting to obtain the best contrast.
- H. Estimate the length of several crystals that appear to be typical. A phosphate coating will have crystals of many sizes, but one size category usually prevails.
- I. Compare the length of the crystals with these of the standards.
Note: Crystal size standard photos are obtained from GMH Central Laboratory.

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