

**DETERMINATION OF LOSS OF SOLIDS DUE TO CURING OF
ELECTROCOAT PRIMERS****Application**

This test method is applicable to anodic and cathodic electrocoat primers to determine the percentage of solids lost during the bake cycle and during the recommended peak metal temperature cure.

Apparatus and Materials Required**Test Panels**

Parker Bonderite 40 CRS panels - 75 x 230 mm. Length of panels may be shortened to permit hanging on the analytical balance.

Source: Parker Division, O.M.I. Corp.
322 Main Street
Morenci, Michigan 48256 U.S.A.

Analytical Balance

Must have precision of ± 0.10 mg.

Oven

Mechanical convection oven capable of reaching peak metal temperatures in less than 10 minutes.

Film Thickness Gage

Permascope Type ES, or equivalent.

Source: Twin Cities Testing Corp.
107-111 Goundry Street
North Tonawanda, NY 14120 U.S.A.

Distilled or Deionized Water

Less than 10 ppm total dissolved solids (per ASTM D 1888).

Procedure

1. Prebake three (3) panels for five (5) minutes at 120 ± 1 °C.
2. Cool the panels to approximately 23 ± 2 °C and weigh to the nearest 0.1 mg. (A = weight of panel.)

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3. Electrocoat the panels per FLTM BI 120-01 to the film thickness as required by the relevant Material Specification.

Note: The electrocoat bath must be under agitation for at least 48 hours prior to electrocoating of the panels.

4. Rinse the panels with distilled or deionized water after coating and allow to drain for 15 to 20 minutes.
5. Place the panels in the oven for three (3) hours at 105 +/- 1 °C.
6. Cool the panels to approximately 23 +/- 2 °C and weigh to the nearest 0.1 mg. (B = weight of panel and electrocoat film after three (3) hours at 105 °C.)
7. Cure the panels in the oven to 10 minutes at the recommended (*) peak metal temperature +/- 1 °C.
8. Cool the panels to approximately 23 +/- 2 °C and weigh to the nearest 0.1 mg. (C = weight of panel and electrocoat film after 10 minutes at the recommended (*) peak metal temperature).

Evaluation

Calculate the percent loss of solids using the following formula:

$$P = \frac{B - C}{B - A} \times 100$$

where:

- P = Percent loss of solids
- A = Weight of panel
- B = Weight of panel and electrocoat film after 3 h at 105 °C.
- C = Weight of panel and electrocoat film after 10 minutes at peak temp.

This method determines the percent weight of electrocoat solids that will be lost between 105 °C and the recommended peak metal temperature.

* As stated in the applicable Engineering Materials Specification, or per the recommendation of the paint supplier if the Engineering Materials Specification does not make reference to the peak metal temperature.

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.