

**DETERMINATION OF ZINC OR MANGANESE PHOSPHATE COATING  
WEIGHTS ON GALVANIZED & COLD ROLLED STEEL****Application**

This procedure is used to determine the weight of zinc or manganese phosphate coating on galvanized and/or cold rolled steel.

**Apparatus Required**

**Analytical Balance**

**Pyrex or Stainless Steel Tray**

**Rubber Gloves**

**Stirring Rods**

**Hood with Suitable Ventilation**

**Compressed Air or Fan for Drying Panels**

**Magnetic Stirring Plate/Bar**

**Belt Sander, Disks, Hammer**

**Reagent Required****Reagent Required**

Add 40 g of ammonium dichromate to a 1.8 liters of C.P. ammonium hydroxide. Mix the solution thoroughly using a magnetic stirring plate/bar until complete dissolution (this process may require several hours of mixing). All used solution should be properly discarded.

**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.

| Date       | Action  | Revisions                                  |
|------------|---------|--------------------------------------------|
| 2001 01 31 | Revised | Editorial – no technical change A. Cockman |
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**Procedure**

1. Sand back of panel on belt sander to remove all phosphate coating on one side. Cut a 100 x 100 mm panel equaling 10,000 sq mm of coated surface. Trim bottom of panel to avoid rounded corners. Die stamp panel for identification if necessary. Clean with acetone to remove oil, grease, or foreign matter. Dry panel in a convection oven for 5 minutes.
2. After panel cools to 23 +/- 2 °C weigh to the nearest 0.1 mg.
3. Place the stripping solution and panel in the tray, supporting the panel on glass rods if the tray is not ribbed. Do this under a hood with suitable ventilation.
4. Allow the panel to soak for 4 - 5 minutes.
5. Remove panel and rinse thoroughly in cold running water, rubbing the panel lightly with a gloved finger or a soft brush.
6. Dip the panel in acetone and dry by means of a fan or clean compressed air.
7. Weigh and calculate coating weight as follows:  
$$\text{Coating weight (mg/sq mm)} = \frac{\text{loss in weight (mg)}}{\text{surface area (sq mm)}}$$
8. Repeat Steps 4 - 7 until a constant weight is obtained.

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.