

**DETERMINATION OF PHOSPHATE COATING WEIGHTS
CAUSTIC SODA METHOD****Application**

This procedure is used to determine the coating weight of iron and zinc phosphate on steel parts, but is not satisfactory for the determination of manganese phosphate. Manganese phosphate should be determined by FLTM AQ 101-01.

Apparatus and Reagents Required**Analytical Balance****Mechanical Convection Oven**

Capable of maintaining a constant temperature of 100 +/- 2 °C.

Test Panels

Steel body skin panels 150 mm x 300 mm. Surface finish 1.4 +/- 0.3 micrometers.

Process three panels through a complete cycle of the phosphate coating system under test, including cleaning, phosphating, acid rinse (if required), and drying.

Caustic Soda Stripping Solution

Dissolve 5 g of Sodium Hydroxide and 1 g of Sodium Tartrate in 100 mL of distilled water.

Replace the solution when stripping action is no longer satisfactory.

Desiccator**Ether or Acetone****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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Page 1 of 2

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Procedure

1. Cut a 100 mm x 100 mm specimen from each of the test panels in such a way that all edges are cut. Deburr after cutting.
2. Degrease and remove any soil by pouring the acetone or ether over the panels. Dry the panels by placing in the oven for five minutes.
3. Cool in a desiccator and weigh each specimen to the nearest milligram.
4. Immerse the specimens in the stripping solution and allow to soak for 2 minutes to loosen the coating.
5. Hold the specimen with a rubber stopper and remove the phosphate coating by scrubbing both sides of the specimens with a rubber policeman.
6. Remove the specimens and rinse thoroughly in cold running water. Blot and then dry in the oven at 100 +/- 2 °C.
7. Cool in the desiccator and reweigh.
8. Repeat steps 4, 5, 6 and 7 to a constant weight.

Evaluation

Calculate the coating weight in g/m² as follows:

$$W = \frac{(W2 - W1) \times 10}{A}$$

Where:

W	=	Coating weight in g/m ²
W2	=	Weight of specimen before dipping in stripping solution in mg
W1	=	Weight of specimen after removal of coating in mg
A	=	Area of specimen in cm ²

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.