

DETERMINATION OF pH AND ALKALINITY OF ELECTROCOATING BATHS**Application**

This procedure is used for the determination of the alkali or organic amine content of electrocoating baths, containing approximately 7 g of non-volatile paint materials per 100 mL bath.

Apparatus Required**pH Meter**

Accuracy 0.1 pH unit.

Laboratory Stirrer

0 to 500 rpm with glass shaft approximately 7 mm O.D. by 457 mm long with an approximately 19 mm propeller at one end.

Beaker

Griffin, low form with spout, 250 mL size.

Buret

Geissler, 50 mL, 0.1 mL subdivisions.

Hydrochloric Acid

Standardized solution, approximately 0.05 N.

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.

Procedure

1. Stir 50 mL of a representative sample in a 250 mL beaker until thoroughly mixed.
2. Place electrodes into sample while agitating.
3. Record initial pH reading. Agitator may be shut off while reading is taken.

Date	Action	Revisions
2001 03 13	Revised	Editorial – no technical change A. Cockman
1992 06 29		

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4. Gradually add hydrochloric acid standard solution from the buret until the predetermined end point pH is reached (pH 3.50).
5. Check for unchanged pH reading after 2 minutes and record the applied volume of HCl.
6. Compute the grams of amine or alkali per 100 g of paint solids.

$$\frac{\text{mL of acid} \times N \text{ acid} \times E \text{ base}}{5 \times \text{g paint solids}/100 \text{ mL bath}} = \text{g base}/100 \text{ g paint solids}$$

or compute the milli equivalents of base/100 g of paint solids

$$\frac{\text{mL acid} \times N \text{ acid} \times 200}{\text{g paint solids}/100 \text{ mL bath}} = \text{m E base}/100 \text{ g paint solids}$$

or compute the milli equivalents of base/100 mL of bath

$$\text{mL acid} \times N \text{ acid} \times 200 = \text{m E base}/100 \text{ mL bath.}$$

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.