

**DETERMINATION OF METAL CONTENT
OF ACID PICKLING BATH****Application**

This procedure determines the metal content of sulfuric acid pickling baths used in the phosphate coating process. An appreciable metal build-up indicates a need for replacement of the bath.

Apparatus Required

Pipet - 1 mL

Buret - 50 mL

Erlenmeyer flask - Pyrex - 50 mL

Solutions Required

Potassium Fluoride - 25 %

Dissolve 25 g of potassium fluoride - KF @ 2H₂O in distilled water and dilute to 100 mL.

Standard Sodium Hydroxide - 0.1 N

Phenolphthalein

Dissolve 0.2 g of phenolphthalein in 50 mL of ethyl alcohol and add 50 mL of distilled water.

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
2000 08 30	Revised	Editorial – no technical change A. Cockman
2000 05 22	Revised	Editorial – no technical change A. Cockman
1992 07 07		

Printed copies are uncontrolled

Page 1 of 3

Copyright © 2000, Ford Global Technologies, Inc.

Procedure

Free Acid

1. Pipet 1.0 mL of the pickling bath into a 50 mL flask.
2. Add 10 mL of 25 % potassium fluoride and 10 drops of phenolphthalein.
3. Titrate promptly with NaOH (0.1 N) to a permanent pink color.

mL of 0.1 N NaOH = points of free acid

Total Acid

1. Pipet 1.0 mL of the pickling bath into a 50 mL flask.
2. Add 25 mL of distilled water and 10 drops of phenolphthalein.
3. Titrate with 0.1 N NaOH to a permanent pink color.

mL of 0.1 N NaOH - points of total acid

Report the metal content of the pickling bath by means of the attached Nomograph, using the amount of free acid and total acid determined above.

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.