Ford Motor Company

FORD LABORATORY TEST METHOD AK 113-01

QUANTITATIVE ANALYSIS OF NITRATE (NO_3) IN CLEANERS

Application

This test method is used to determine the percent nitrate in a cleaner.

Apparatus Required

Analytical Balance
Precision +/- 0.1 mg

Distillation Apparatus

Distillation Flask
Kjeldahl (or boiling type) with ground glass joints.

Hot Plate

Pipet

Titration Apparatus

Graduated Cylinder or Flask

Glass Boiling Beads

The above apparatus is available from any reputable laboratory equipment supply house.

Materials Required

Sodium Hydroxide
Reagent grade; CAUTION: Corrosive

Hydrochloric Acid
Concentrated, Reagent grade; CAUTION: Corrosive

Devarda's Alloy
Powdered.

Date	Action	Revisions	
2001 01 22	Revised	Editorial – no technical change	A. Cockman
2000 03 23	Revised	Editorial – no technical change	A. Cockman
1991 09 24			

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Methyl Red
Reagent grade.

Methyl Alcohol
CAUTION: Low flash point

Red Litmus Paper

Distilled or Deionized Water
10 ppm max total dissolved solids (ASTM D 1888).

Solutions Required

Sodium Hydroxide Solution
0.5 N; Refer to FLTM AZ 102-01

Hydrochloric Acid Solution
0.5 N; Refer to FLTM AZ 102-01

Methyl Red Indicator
Refer to FLTM AZ 102-01

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. Take a 1 to 2 g aliquot of the prepared 1 % solution of cleaner into a 1 000 mL distilling flask (Kjeldahl of boiling type) with ground glass joints.
2. Dilute to 300 mL with distilled water.
3. Add glass boiling beads.
4. Buret 40 mL of 0.5 N hydrochloric acid into a 500 mL receiving flask.
5. Add a few drops of methyl red indicator.
6. Connect this flask to the condenser making sure that the outlet glass tube from the condenser is immersed in the acid.

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