

QUANTITATIVE ANALYSIS OF SULFATES IN CLEANERS**Application**

This test method is used to determine the percent sulfates in a cleaner. The procedure is intended to be a simplified version of the applicable ASTM standard (e.g., D 501 or D 800) as well as being more appropriate for dealing with the many formulations of cleaners that are commonly encountered in plant operations.

Apparatus Required**Analytical Balance**

Precision +/- 0.1 mg.

Muffle Furnace

Must be capable of maintaining 800 +/- 10 °C.

Steam Bath**Hot Plate****Desiccator**

With desiccant.

Platinum Crucible**Buret or Pipet****Beaker**

400 mL

Funnel

Suitable for use with filter paper.

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

Date	Action	Revisions
2001 01 22	Revised	Editorial – no technical change A. Cockman
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Materials Required

Hydrochloric Acid

Concentrated; Reagent grade; CAUTION: Corrosive.

Hydrofluoric Acid

Concentrated; Reagent grade; CAUTION: EXTREMELY CORROSIVE - SPECIAL HANDLING PRECAUTIONS MUST BE EMPLOYED.

Barium Chloride

Reagent grade; CAUTION: Poisonous.

Distilled or Deionized Water

10 ppm max total dissolved solids (ASTM D 1888).

Filter Paper

Must be suitable for fine precipitates.

Solutions Required

Hydrochloric Acid Solution

1:1

Barium Chloride Solution

10 % concentration (with 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.

Procedure

1. Take a 0.5 to 1.0 g aliquot of the prepared 1 % solution of cleaner in a 400 mL beaker.
2. Dilute to 200 mL with distilled water.
3. Add 10 mL of 1:1 hydrochloric acid. Make sure that an excess of acid has been added.