

Standard Method of
ANALYSIS OF CALCIUM AND BARIUM PETROLEUM
SULFONATES¹



ASTM Designation: D 1216 - 70

This Standard of the American Society for Testing and Materials is issued under the fixed designation D 1216; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

Scope and Application

1. This method of analysis describes procedures for the determination of mineral oil, calcium or barium sulfonate, calcium or barium carboxylate, average molecular weight, water, and specific gravity of crude and refined calcium and barium petroleum sulfonates.

Outline of Method

2. This method of analysis of calcium and barium petroleum sulfonates is outlined in Fig. 1.

Apparatus

3. (a) *Vacuum Oven* capable of operating at 70 to 100 C under 3 mm of mercury absolute pressure.

(b) *Beaker*, glass, with an inverted rim turned in 10 mm from the wall of beaker and pointed downward to a point 5 mm

below the shoulder, and having a diameter of 65 to 75 mm, a height of 75 to 85 mm, and a wall thickness (approximately 1 mm) such that its weight is less than 70 g.

(c) *Steam Bath*.

(d) *Muffle Furnace* capable of operating at 800 to 1000 C.

(e) *Atmospheric Ovens* capable of being maintained at 120 C and at 70 to 80 C.

(f) *Graduated Mixing Cylinder* with glass stopper, 250-ml capacity, graduated in 2-ml subdivisions.

(g) *Water Bath* capable of being maintained at 40 to 50 C and at 25 ± 0.2 C.

(h) *Vacuum Desiccator*, shielded.

(i) *Distillation Apparatus* as described in ASTM Method D 95, Test for Water in Petroleum and Other Bituminous Materials.²

(j) *Dish*, platinum, approximately 50- or 100-ml capacity.

(k) *Pycnometer* as shown in Fig. 2. To calibrate, weigh to the nearest milligram, with cap in place; then fill with distilled water at 15 to 20 C and place

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the ASTM Committee D-2 on Petroleum Products and Lubricants. A list of members may be found in the ASTM Year Book.

Current edition effective Sept. 11, 1970. Originally issued 1952. Replaces D 1216 - 56.

² Appears in this publication.