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An American National Standard

Standard Test Methods for Nonvolatile Matter in Halogenated Organic Solvents and Their Admixtures[1]

This standard is issued under the fixed designation D 2109; 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. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

ε[1] NOTE—A research report footnote was added in November 2001.

1. Scope

1.1 These test methods cover the determination of nonvolatile matter in halogenated organic solvents and admixtures.

1.2 Three test methods are covered, as follows:

1.2.1 *Test Method A*—For halogenated organic solvents or admixtures having less than 50 ppm nonvolatile matter; or where precision greater than ±10 ppm is required.

1.2.2 *Test Method B*—For halogenated organic solvents or admixtures having more than 50 ppm nonvolatile matter or where precision of ±0.001 % (10 ppm) is satisfactory.

1.2.3 *Test Method C*—For low-boiling halogenated organic solvents or their admixtures (for example, methylene chloride, trichlorotrifluoroethane) that may superheat and cause bumping while evaporating to dryness with steam. A precision of greater than ±10 ppm can be attained.

1.3 The values stated in SI units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 The term *nonvolatile matter* should not be construed as equivalent to *residue on ignition*, *ignition residue*, or *ash content*. Particulates, sediments, and suspended matter should not be considered part of nonvolatile residue. If these solids are present in the sample, they should be removed by filtration or decantation prior to beginning this test method. Nonvolatile matter is considered to be" in solution" with the solvent and that which will become residual upon drying the solvent at a specified temperature.

3. Significance and Use

3.1 Nonvolatile matter in solvents can adversely affect their cleaning properties. These test methods can be used to control soil contamination in the boiling solvent, which if allowed to become too high, can decrease the stability of the solvent.

3.2 These test methods can be used to establish manufacturing and purchasing specifications.

4. Apparatus

4.1 *Oven*, thermostatically controlled at 105 ± 5°C.

4.2 *Evaporating Dish*, 125-mL capacity, platinum or high-silica glass.

4.3 *Steam Bath* (or hot plate).

4.4 *Analytical Balance*.

4.5 *1000-mL Volumetric Flask* (Test Method A).

4.6 *100-mL Volumetric Pipet* (Test Method B).

4.7 *1000-mL Graduated Cylinder* (Test Method C).

4.8 *1500-mL Erlenmeyer Flask* (Test Method C).

TEST METHOD A

5. Procedure

5.1 Dry a 125-mL capacity platinum (or high-silica glass) evaporating dish in an oven at 105 ± 5°C and cool in a desiccator. Repeat until the weight is constant or within 0.1 mg of the last weighing. Rinse a clean dry 1000-mL volumetric flask with the solvent and fill to the 1000-mL mark with the solvent to be tested. Invert the evaporating dish, place it over the mouth of the flask, hold it firmly in place, and invert the flask. In this position place both dish and flask on a steam bath. Adjust a ring support to hold the flask so the mouth of the flask is approximately 25 mm above the bottom of the evaporating dish. Thus held, the flask automatically feeds the solvent to the dish during the evaporation.

NOTE 1—**Caution:** This test method must be run in a ventilated, dust-free area.

5.2 Evaporate the 1000-mL sample to dryness. Remove the dish from the steam bath with metal tongs and blot the outside of the dish with lint-free paper tissue.

[1] These test methods are under the jurisdiction of ASTM Committee D26 on Halogenated Organic Solvents and Fire Extinguishing Agents and are the direct responsibility of Subcommittee D26.04 on Test Methods.

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