Designation: D 2072 – 92 (Reapproved 1998)ε1

Standard Test Method for Water in Fatty Nitrogen Compounds[1]

This standard is issued under the fixed designation D 2072; 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 test method was prepared jointly by ASTM and the American Oil Chemists' Society.

ε[1] NOTE—Former Footnote 4 was deleted editorially in May 1998.

1. Scope

1.1 This test method covers the determination of water in fatty nitrogen compounds by titration with a water-methanol solution after addition of an excess of Karl Fischer reagent.

1.2 The procedures appear in the following order:

	Sections
Fatty Primary Amines, Diamines, and Amidoamines	4-8
Difatty Secondary Amines	9-12
Quaternary Ammonium Chlorides	13-16

1.3 *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.* Specific hazard statements are given in 5.3, 6.1, and 11.2.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1193 Specification for Reagent Water[2]

D 1364 Test Method for Water in Volatile Solvents (Fischer Reagent Titration Method)[3]

3. Summary of Test Method

3.1 An excess of Karl Fischer reagent is added to the specimen dissolved in the prescribed solvent. After reaction with the water in the specimen, the excess Karl Fischer reagent is back-titrated with water-methanol solution. The end point is best detected electrometrically, but with practice it may be satisfactorily determined visually.

FATTY PRIMARY AMINES, DIAMINES, AND AMIDOAMINES

4. Apparatus

4.1 *Buret and Bottle Assemblies* (or other convenient arrangement), protected with silica gel so as to maintain Karl Fischer reagent and water-methanol solutions free from contamination with moisture either through the atmosphere or otherwise (Note 1). The titration should be performed in a closed system to avoid the absorption of water. The electrode and buret shall be mounted through a close-fitting stopper, and provision made for mechanical stirring by means of a magnetic stirrer.

NOTE 1—It is essential that the Karl Fischer reagent, water-methanol solution, and anhydrous methanol be protected from atmospheric moisture at all times. In humid seasons or climates, the drying tubes used to protect the reagents against moisture in the air must be watched closely. The silica gel must be changed as soon as there is evidence of color change in it. Care also must be taken to minimize the exposure of the sample and solutions to atmospheric moisture during the determinations.

4.2 *Magnetic Stirrer*, that can be used with the closed titration beaker with inert plastic-coated stirring bar.

4.3 *Pipet*, automatic, 25-mL.

4.4 *Pipet*, weighing, or equivalent for weighing water, for standardization of reagent.

4.5 *Electrometric Titrator* of the "dead stop" type, equipped with platinum electrodes. On operation a small electrical potential is imposed across the electrodes. At the end point there is a change in the flow of current due to the change in polarization of the electrodes.

[1] This test method is under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications, and is the direct responsibility of Subcommittee D01.32 on Drying Oils.

Current edition approved March 15, 1992. Published May 1992. Originally published as D 2072 – 65 T. Last previous edition D 2072 – 66 (1987)ε1.

[2] *Annual Book of ASTM Standards*, Vol 11.01.

[3] *Annual Book of ASTM Standards*, Vol 06.04.