Designation: D1722 – 09 (Reapproved 2023)

Standard Test Method for Water Miscibility of Water-Soluble Solvents[1]

This standard is issued under the fixed designation D1722; 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 U.S. Department of Defense.

1. Scope

1.1 This test method covers the determination of the miscibility of water-soluble solvents with water. While written specifically for testing acetone, isopropyl alcohol (isopropanol), and methyl alcohol (methanol), the method is suitable for testing most water-soluble solvents.

1.2 This test method serves to detect water-immiscible contaminants qualitatively; the level of detection of these impurities varies widely with both the type of solvent and the type of impurity.

1.3 The level of detection of water-insoluble materials depends upon the solvent tested and the type of impurity or impurities present, that is paraffin, olefin, aromatic, high molecular weight alcohol, or ketone, etc. There is, therefore, no specific level of impurity detected by this procedure.

NOTE 1—This test method is normally performed at ambient, but other temperatures may be used as specified by the consumer and supplier.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 For specific hazard information and guidance, consult the supplier's Safety Data Sheet for materials listed in this test method.

1.6 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1193 Specification for Reagent Water

3. Summary of Method

3.1 The specimen is diluted to 10 volumes with water and the resulting mixture examined for cloudiness or turbidity.

4. Significance and Use

4.1 Water-insoluble materials present in a solvent expected to be completely water miscible may interfere with many uses of the solvent. This test method provides a measure of the miscibility of water-soluble solvents with a polar medium-water. It also provides a qualitative indication of the presence or absence of water-immiscible contaminants.

4.2 The results of this test method may be used in assessing compliance with a specification. Prior to agreeing to this test method as the basis of a specification requirement, it may be desirable that the interpretation of what constitutes cloudiness or turbidity be agreed upon between the supplier and the purchaser.

5. Apparatus

5.1 *Cylinder,* graduated, glass-stoppered, 250 mL.

6. Reagent

6.1 *Water*—References to water shall be understood to mean reagent water conforming to Type IV or better of Specification D1193.

7. Procedure

7.1 Transfer 25 mL of the sample to one of two clean 250 mL graduated cylinders, dilute to the 250 mL mark with water, and mix thoroughly. Allow any bubbles to rise to the surface.

7.2 Add 250 mL of water to the second cylinder and reserve as a blank.

[1] This test method is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

7.3 Compare the specimen solution with the water blank by viewing through the length of the column of liquid toward a dark background. When an artificial light source is used, position the light so that it passes transversely through the cylinders.

8. Report

8.1 If the specimen-water mixture is as free of cloudiness or turbidity as the blank, report the sample as “passes test.” If any cloudiness or turbidity is detected after 30 min, report as “fails test.”

9. Precision and Bias

9.1 No information is presented about either precision or bias of this test method for water miscibility of water-soluble solvents since the test result is nonquantitative and is reported as pass or fail.

10. Keywords

10.1 solvents; water miscibility test