



Designation: E 1389 – 95

Standard Practice for Cleanup of Fire Debris Sample Extracts by Acid Stripping¹

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1. Scope

1.1 This practice covers a procedure for the purification of extracts from fire debris samples. The preparation of these extracts is described in Practices E 1385, E 1386, E 1412, and E 1413. An acid mixture is used to remove components from the extracts which may interfere with the identification of ignitable liquid residues.

1.2 *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. Referenced Documents

2.1 ASTM Standards:

E 1385 Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Steam Distillation²

E 1386 Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Solvent Extraction²

E 1387 Test Method for Ignitable Liquid Residues in Extracts from Samples of Fire Debris by Gas Chromatography²

E 1412 Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Passive Headspace Concentration²

E 1413 Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Dynamic Headspace Concentration²

E 1618 Guide for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry²

3. Summary of Practice

3.1 This practice is used to purify extracts which, after gas

chromatographic analysis, appear to contain co-extracted compounds from a fire debris sample, which interfere with the identification of ignitable liquid residues.

4. Significance and Use

4.1 The presence of oxygenated or nitrogenated organic species extracted from a fire debris sample can sometimes hinder the interpretation of gas chromatographic data. This practice can facilitate removal of such species, eliminating the interference.

5. Reagents and Materials

5.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society where such specifications are available.³ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 *Phosphoric Acid*, 70 %.

5.3 *Sulfuric Acid*, concentrated.

6. Procedure

6.1 Mix the concentrated phosphoric and sulfuric acids in a ratio of 1.7:1 (v/v), by adding the sulfuric acid slowly to the 70% phosphoric acid while constantly mixing with a glass rod. Allow to cool.

6.2 Add 2 mL of the acid mixture to up to 5 mL of the extract in an appropriate closed container.

6.3 Shake this mixture for 30 s and allow to stand until the upper layer is clear.

6.4 Analyze the top layer by gas chromatography or GC/MS as described in Test Method E 1387 or Guide E 1618.

7. Keywords

7.1 extract cleanup; fire debris samples

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² *Annual Book of ASTM Standards*, Vol 14.02.

³ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmaceutical Convention, Inc. (USPC), Rockville, MD.

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