



Designation: E2451 – 08

Standard Practice for Preserving Ignitable Liquids and Ignitable Liquid Residue Extracts from Fire Debris Samples¹

This standard is issued under the fixed designation E2451; 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.

1. Scope

1.1 This practice describes procedures for preserving residues of ignitable liquids in extracts obtained from fire debris samples and questioned ignitable liquid samples. Extraction procedures are described in the Referenced Documents.

1.2 This practice does not attempt to address all the issues regarding the short-term or long-term storage of ignitable liquid samples and ignitable liquid extracts from fire debris samples. The changes that may occur under various storage conditions have not been fully documented.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

E1386 Practice for Separation of Ignitable Liquid Residues from Fire Debris Samples by Solvent Extraction

E1387 Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography (Withdrawn 2010)³

E1388 Practice for Sampling of Headspace Vapors from Fire Debris Samples

E1412 Practice for Separation of Ignitable Liquid Residues from Fire Debris Samples by Passive Headspace Concentration With Activated Charcoal

E1413 Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Dynamic Headspace Concentration

E1459 Guide for Physical Evidence Labeling and Related Documentation

¹ This practice is under the jurisdiction of ASTM Committee E30 on Forensic Sciences and is the direct responsibility of Subcommittee E30.01 on Criminalistics. Current edition approved March 1, 2008. Published April 2008. DOI: 10.1520/E2451-08.

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.

³ The last approved version of this historical standard is referenced on www.astm.org.

E1492 Practice for Receiving, Documenting, Storing, and Retrieving Evidence in a Forensic Science Laboratory

E1618 Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography-Mass Spectrometry

E2154 Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Passive Headspace Concentration with Solid Phase Microextraction (SPME)

3. Summary of Practice

3.1 Extracts obtained from fire debris samples and questioned liquids analyzed for the presence of ignitable liquid residues are retained and preserved for potential reanalysis by Test Methods E1387 or E1618.

4. Significance and Use

4.1 The archiving of extracts recovered from fire debris or liquids submitted in a fire investigation provides a mechanism to preserve extracts and liquids for reanalysis in the event that sample loss, sample degradation, or failure of the fire debris container occurs during post-analysis storage of fire debris evidence.

4.2 The nature of some extraction procedures, which may preclude reanalysis, is considered.

4.3 Changes to a preserved sample extract and the length of time it remains viable under storage conditions are unknown.

4.4 The concentration and composition of the ignitable liquid residue or the use of an alternate extraction/concentration technique used to preserve a sample extract of the fire debris sample may result in different findings between the analysis of the preserved sample and the original analysis.

5. Materials

5.1 *Airtight and Vapor-Tight, Volatile-Free Storage Containers*—The following are suggested container types:

5.1.1 Septum crimp vials with PTFE-lined seals.

5.1.2 Screw cap glass vials with PTFE-lined seals.

5.1.3 Polymer evidence bags (this does not include polyethylene or polypropylene-type containers).

5.2 *Adsorption Media:*