



ASTM Standards According to NFPA 921

Who is ASTM?

- The American Society for Testing Materials was formed in 1898, founded by Charles B. Dudley, Ph.D., a chemist with the Pennsylvania Railroad.
- In 2001, changed name to ASTM International.
- ASTM International is a globally recognized leader in the development and delivery of voluntary consensus standards. Today, [over 12,000 ASTM standards](#) are used around the world.



Membership

- You can join...

<http://www.astm.org/MEMBERSHIP/index.html>

Membership is \$75. You get a free publication for joining and voting rights for your discipline.



E30 on Forensic Sciences

- ASTM Committee E30 on Forensic Sciences was formed in 1970. E30 meets once a year, in February, with about 125 members attending two days of meetings.
- E30 has 10 technical subcommittees that maintain jurisdiction over these standards.



E30 on Forensic Sciences

- These standards have and continue to play a preeminent role in all aspects to forensic sciences, including:
 - criminalistics,
 - questioned documents,
 - forensic engineering,
 - fire debris analysis,
 - drug testing analysis,
 - and collection and preservation of physical evidence



NFPA 921 and ASTM Standards

Thirty-two (32) ASTM Standards referenced in
NFPA 921, Chapter 2



ASTM Standards

- ASTM D56, *Standard Test Method for Flash Point by Tag Closed Tester*, 2005 (2010).
- ASTM D86, *Standard Test Method for Distillation of Petroleum*, 2011b.
- ASTM D92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester*, 2011.
- ASTM D93, *Standard Test Method for Flash Point by Pensky-Martens Closed Cup Tester*, 2011.
- ASTM D1230, *Standard Test Method for Flammability of Apparel Textiles*, 2010.
- ASTM D1265, *Standard Practice for Sampling Liquefied Petroleum (LP) Gases (Manual Method)*, 2011.
- ASTM D1310, *Standard Test Method for Flash Point and Fire Point of Liquids by Tag Open-Cup Apparatus*, 2001 (2007).
- ASTM D1929, *Standard Test Method for Determining Ignition Temperature of Plastics*, 2011.
- ASTM D2859, *Standard Test Method for Flammability of Finished Textile Floor Covering Materials*, 2006 (2011).



ASTM Standards

- ASTM D2887, *Standard Test Method for Boiling Range Distribution of Petroleum Fractions by Gas Chromatography*, 2008.
- ASTM D3065, *Standard Test Methods for Flammability of Aerosol Products*, 2001 (2006).
- ASTM D3828, *Standard Test Methods for Flash Point by Small Scale Closed Tester*, 2009.
- ASTM D4809, *Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)*, 2009a.
- ASTM D5305, *Standard Test Method for Determination of Ethyl Mercaptan in LP-Gas Vapor*, 1997 (2007).
- ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, 2011c.
- ASTM E108, *Standard Test Method for Fire Tests of Roof Coverings*, 2011.



ASTM Standards

- ASTM E119, *Standard Methods for Fire Tests of Building Construction and Materials*, 2011a.
- ASTM E603, *Standard Guide for Room Fire Experiments*, 2007.
- ASTM E648, *Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source*, 2010 e1.
- ASTM E659, *Standard Test Method for Autoignition Temperature of Liquid Chemicals*, 1978 (2005).
- ASTM E681, *Standard Test Method for Concentration Limits of Flammability of Chemicals*, 2009.
- ASTM E800, *Standard Guide for Measurement of Gases Present or Generated During Fires*, 2007.
- ASTM E860, *Standard Practice for Examining and Preparing Items that Are or May Become Involved in Criminal or Civil Litigation*, 2007.



ASTM Standards

- *ASTM E906, Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products, 2010.*
- *ASTM E1188, Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator, 2011.*
- *ASTM E1226, Test Method for Pressure and Rate of Pressure Rise for Combustible Dusts, 2010.*
- *ASTM E1352, Standard Test Method for Cigarette Ignition Resistance of Mock-up Upholstered Furniture Assemblies, 2008a.*
- *ASTM E1353, Standard Test Methods for Cigarette Ignition Resistance of Components of Upholstered Furniture, 2008a e1.*
- *ASTM E1354, Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption, 2011b.*



ASTM Standards

- ASTM E1459, *Standard Guide for Physical Evidence Labeling and Related Documentation*, 1992 (2005).
- ASTM E1618, *Standard Guide for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography–Mass Spectrometry*, 2011.
- ASTM E2067. *Standard Practice for Full-Scale Oxygen Consumption Calorimetry Fire Tests*, 2008.



There is more...

- In the Annex...
 - ASTM E678, *Standard Practice for Evaluation of Scientific or Technical Data*,
 - ASTM E620, *Standard Practice for Reporting Opinions of Technical Experts*,
 - ASTM E1492, *Standard Practice for Receiving, Documenting, Sorting, and Retrieving Evidence in a Forensic Science Laboratory*, 1992;
 - And...others...



Focus on NFPA 921 ASTM Standards

- **ASTM E860**, *Standard Practice for Examining and Preparing Items that Are or May Become Involved in Criminal or Civil Litigation*, 2007.
- **ASTM E1188**, *Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator*, 2011.
- **ASTM E1459**, *Standard Guide for Physical Evidence Labeling and Related Documentation*, 1992 (2005).
- **ASTM E620**, *Standard Practice for Reporting Opinions of Technical Experts*.



ASTM E860

*Standard Practice for Examining and Preparing
Items that Are or May Become Involved in
Criminal or Civil Litigation*

It is a two-page document (~\$39-digital)



Significance and Use

4.1 This practice establishes procedures to be followed to document the nature, state, or condition of items of evidence. It also describes specific actions that are required if planned testing, examination, disassembly, or other actions are likely to alter the nature, state, or condition of the evidence so as to preclude or adversely limit additional examination or testing.



ASTM E860

Scope

1.1 This practice sets forth guidelines for the examination and testing of actual items or systems (hereinafter termed evidence) that may have been involved in a specific incident that are or may be reasonably expected to be the subject of civil or criminal litigation. This practice is intended to become applicable when it is determined that examination or testing of evidence is required, and such examination is likely to change the nature, state or condition of the evidence.

1.2 This practice recommends generally acceptable professional practice, although the facts and issues of each situation may require specific considerations not expressly addressed herein. Deviations from this practice are not necessarily wrong or inferior, but such deviations should be justified and documented.



ASTM E860

1.3 This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education, training, or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances.

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.



NFPA 921 and ASTM E860

E860 is referenced in NFPA 921 in the following locations:

7.7.3

7.10.1.6.2

12.3.5.7

29.3.1



ASTM E860

ASTM E860 Checklist



ASTM E1188

Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator, 2011

It is a two-page document



ASTM E1188

Significance and Use

- This practice is intended for use by any technical investigator when investigating an incident that can be reasonably expected to be the subject of litigation. The intent is to obtain sufficient information and physical items to discover evidence associated with the incident and to preserve it for analysis.
- The quality of evidence may change with time, therefore, special effort should be taken to capture and preserve evidence in an expeditious manner. This practice sets forth guidelines for the collection and preservation of evidence for further analysis.
- Evidence that has been collected and preserved shall be identified with, and be traceable to, the incident. This practice sets forth guidelines for such procedures.



ASTM E1188

Scope

1.1 This practice covers guidelines for the collection and preservation of information and physical items by any technical investigator pertaining to an incident that can be reasonably expected to be the subject of litigation.

1.2 This practice recommends generally accepted professional principles and operations, although the facts and issues of each situation require consideration, and frequently involve matters not expressly dealt with herein. Deviations from this practice should be based on specific articulable circumstances.

1.3 This practice offers a set of instructions for performing one or more specific operations. This standard cannot replace knowledge, skill or ability acquired through appropriate education, training, and experience and should be used in conjunction with sound professional judgment.

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.



NFPA 921 and ASTM E1188

- Same sections of NFPA 921 as E1459



ASTM E1188

ASTM E1188 Checklist



ASTM E1459

Standard Guide for Physical Evidence Labeling and Related Documentation

It is a two-page document



ASTM E-1459

1. Scope

1.1 This guide describes methods to be used for labeling physical evidence collected during field investigations; received in a forensic laboratory; or isolated, generated, or prepared from items submitted for laboratory examination.

1.2 Many types of physical evidence may be hazardous. It is assumed that personnel assigned to the collection, packaging, storing, or analysis of physical evidence will take precautions as appropriate to the evidence.

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.



ASTM E-1459

Identified in:

NFPA 921—7.7

NFPA 921—7.7.3



NFPA 921 and ASTM E1459

7.7

All evidence should be marked or labeled at the time of collection as required by ASTM E1188 and ASTM E1489...

7.7.3—Evidence List

Also mentions E860, E1188, E1459, E1492



ASTM E1459

ASTM E1459 Checklist



ASTM E1492

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



ASTM E1492

Significance and Use

- Prior to being presented in court, a foundation must be established showing how evidence was collected, who collected the evidence, where it was collected, who has had custody of the evidence, how the evidence has been processed, and when changes of custody have occurred.
- If the procedures outlined in this practice are followed, the chain of custody with respect to the evidence while it is in the custody of the forensic laboratory will be protected.



ASTM E1492

1. Scope

1.1 This practice describes procedures and techniques for protecting and documenting the integrity of physical evidence with respect to suitability for scientific testing, and admissibility as evidence in criminal or civil litigation.



NFPA 921 and ASTM E1492

Same sections as other standards, especially
17.7.3



Conclusions

- Get your ASTM standards
- Read your ASTM standards
- Know your ASTM standards
- Practice your ASTM standards
- You will be tested on ASTM standards
 - Depositions/ Court



QUESTIONS?

