



ATF-LS-E25 Explosives Examination Report Writing	Published Online: March 2018
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I. SCOPE

This policy is applicable to explosives examinations in all ATF Forensic Science Laboratories. These requirements supplement those for report writing in the first three references (ISO 17025, ASCLD/LAB Supplemental, and ATF-LS-5.10).

II. REFERENCES

1. International Organization for Standardization/International Electrotechnical Commission (ISO/IEC). *ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories*. ISO/IEC, Geneva, Switzerland.
2. American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB). *ASCLD/LAB-International 6.001.SR.2004-rev.0 Supplemental Requirements for the Accreditation of Forensic Science Testing and Calibration Laboratories*. ASCLD/LAB, Garner, North Carolina.
3. ATF-LS-5.10 Reporting the Results of Analysis
4. ASTM International. *ASTM E620-11 Standard Practice for Reporting Opinions of Scientific or Technical Experts*. ASTM International, West Conshohocken, Pennsylvania.
5. ASTM International. *ASTM E678-07 Standard Practice for Evaluation of Scientific or Technical Data*. ASTM International, West Conshohocken, Pennsylvania.
6. *Notice of List of Explosives Materials*, [Federal Register, Vol. 78, No. 208](#), Monday, October 28, 2013.

III. WRITTEN REPORT CONTENT

This procedure describes guidelines for reporting analyses, comparisons, and other interpretations drawn from explosives examinations. The report shall contain the technical opinions and conclusions rendered by the expert. The results of each test or series of tests shall be reported accurately, clearly, unambiguously and objectively (ISO 17025 5.10.1). The conclusion should be consistent with all of the significant data developed and accepted physical scientific principles.

The actual language used in reporting the results of explosives examinations will vary depending on the contents of the evidence and the examiner's discretion. Normally a short description of the item(s) examined will accompany the result of testing. It is often appropriate to include the following types of information:

- A description of the (reconstructed) device
- The blast damage or item condition
- The initiating mechanism or indications of it (such as a hole)
- Descriptions of components and any modifications to them
- Model numbers, labeling or markings
- A description of any other material attached or associated with the device.

See also **E24 Examination of Explosive Components** for additional reporting guidance on components.

Each year ATF publishes a Notice of List of Explosives Materials in the Federal Register (reference 6). This is a list of explosives, blasting agents and detonators which are defined as explosive materials in 18

U.S. Code Chapter 40 (Importation, Manufacture, Distribution and Storage of Explosive Materials). The notice states that while it is comprehensive, it is not all-inclusive and there are other explosives not on the list. When reporting the presence of explosives or residues, the examiner will normally use item names that occur on this list.

All explosives identified will be reported. Terminology such as “consistent with” is typically used when the analytical data does not support an identification of a specific chemical or product, but does provide reliable information to include a substance within a class of materials. For example if EGDN is indicated on the NICI GCMS, but can’t be confirmed, AND the residue contains ammonium and nitrate ions, this may be reported as “residue chemically consistent with dynamite”. However the EGDN cannot be reported individually.

The terms “detected”, “consistent with” and “indicated” shall not be used when the results of analysis do not meet the criteria for the identification of a molecular explosive except in the case of potentially exculpatory evidence, and in this case the report shall include a clarifying statement. An example is detection agents/taggants for which the laboratory system does not have a technique or combination of techniques capable of achieving identification. For example: “Dimethyl dinitrobutane (DMNB), a detection agent, was indicated but could not be confirmed in Exhibit 1.”

It may be important to note that residues were sampled or extracted from the interior surface of a device container. In some circumstances, it may be relevant to note how the evidence was sampled, for example when solid combustion products are identified in scrapings or from an extract. If a material doesn’t function as expected during the ignition susceptibility test (IST), that will be reported. Likewise, if the explosive identified doesn’t match the blast damage, the inconsistency shall be explained in the report.

Definitions:

Identification – Identification is a result which meets any of the following definitions:

- Identification is a qualitative result from a method (or combination of methods) that meet criteria defined in the laboratory technical documents.
- Chemical identification is the act of assigning an analyte/analytical signal to one of the set of known individual chemical compounds or to a group/class of compounds. For example:
 - Nitroglycerin, a component of double-base smokeless powder, was identified on Exhibit 3.
 - Exhibit 2 contained trinitrotoluene (TNT).
 - Grey epoxy adhesive was used to secure both end caps.
- Identification is the act of assigning a sample to one of the classification groups for materials, products, etc., using physical and/or chemical analysis. Identification of individual compounds may be required to identify/classify an analyzed sample as one of a definite kind/type/grade/brand of products, material compositions, formulations, etc. For example:
 - Exhibit 1 was a Duracell 9-volt battery
 - Exhibit 1 was identified as Hodgdon Pyrodex® (RS particle size), a black powder substitute.

Indication –The analyte may be present. Insufficient results have been obtained for identification.

Confirmation –The combination of two or more analyses that provide full or complementary information enabling the substance to be unequivocally identified (ideally by using methods of orthogonal selectivity, at least one of which meets identification criteria.) By definition, confirmation requires that one result must “confirm” the other, so no single analysis (no matter how selective it is) can be confirmatory. The confirmatory method should provide complementary information, i.e., should not be the same and inconclusive.