FACTSHEET FOR OSAC PROPOSED STANDARD 2024-S-0002, V2.0

Standard Test Method for the Examination and Comparison of Toolmarks for Source Attribution

WHAT IS AN AAFS STANDARD FACTSHEET?

The AAFS produces clear, concise, and easy-to-understand factsheets to summarize the contents of technical and professional forensic science standards on the OSAC Registry. They are not intended to provide an interpretation for any portion of a proposed standard.

WHAT IS THE PURPOSE OF THIS PROPOSED STANDARD?

This standard provides minimum requirements for conducting and documenting the microscopic evaluation, classification, and comparison of toolmarks for the determination of source attribution. The term "toolmark" refers to both firearm-produced and non-firearm-produced toolmarks.

This standard applies to comparisons performed between two or more questioned toolmarks, between two exemplars, or between exemplars and questioned toolmarks.

WHY IS THIS PROPOSED STANDARD IMPORTANT? WHAT ARE ITS BENEFITS?

The general methodology of Evaluation, Classification, Comparison, Conclusion, and Verification covered in this standard is the process used in most toolmark comparison casework performed by forensic science service providers (FSSPs).

Therefore, the stated minimum requirements promote a higher level of consistency to this type of examination across FSSPs.

This OSAC Proposed Standard has been sent to AAFS Academy Standards Board (ASB) for further development and publication. Get involved as a member or by providing public comment.

HOW IS THIS PROPOSED STANDARD USED, AND WHAT ARE THE KEY ELEMENTS?

Key requirements in this standard address the steps in the general methodology of Evaluation, Classification, Comparison, Conclusion, and Verification and include:

- Evaluation of each tool and/or toolmark independently
- Documentation of relevant class characteristics
- Examination and evaluation for each tool working surface or the toolmark for subclass characteristic potential
- Production of exemplar(s) (test marks)
- Intercomparison of exemplars for reproducibility using microscopy e.g., Light Comparison Microscopy and/or Virtual Comparison Microscopy
- Comparison of the entirety of questioned toolmarks
- Documentation of each step listed above

This standard:

- Requires a conclusion of exclusion when there is disagreement of discernible class characteristics
- Defines the required documentation for conclusions
- Requires documentation of which pair-wise comparisons were performed
- States that a conclusion alone, without supporting documentation, is insufficient

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