

Forensic Examination of Hair by Microscopy



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 published standard.

WHAT IS THE PURPOSE OF THIS STANDARD?

This standard guide describes procedures for the forensic examination of hair by microscopy for forensic science practitioners.

Instrumentation, sample collection, sample handling and preparation, and documentation are addressed. This standard also provides direction and guidance on performing macroscopical and microscopical hair examinations, the types of results that can be reached, and reporting.

Guidance is given regarding DNA analysis on hairs.

WHY IS THIS STANDARD IMPORTANT? WHAT ARE ITS BENEFITS?

Hair, due to loss during the normal hair-growth cycle, is a common type of evidence encountered at scenes. Microscopic hair examination can associate a known hair to an unknown hair or, conversely, provide an exclusion with or without limitations.

Adherence to the standard promotes a consistent approach to microscopical hair examinations.

This standard is intended to assist hair examiners in the examination, classification, and comparison of hair by microscopy.

Forensic science service providers (FSSPs) engaged in the examination of hair by microscopy are encouraged to meet this standard.



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

The microscopical analysis and comparison of hair evidence in forensic science can provide valuable information. Microscopic features observed in hair can be used to classify it as animal or human. If a hair is human, these features can be used to classify it further based on body origin and ancestry. Hairs can also be examined to determine whether or not the hair is suitable for nuclear DNA testing. Microscopic features in a hair can also be compared to a known sample to determine whether or not they could have come from a common source.

This guide covers the following key elements: instrumentation setup, sample collection, sample handling and preparation, documentation, macroscopical and microscopical examination procedures, results that can be reached, factors that influence those results, limitations, and reporting.

Microscopical hair comparisons are not a means of individualization. This guide addresses the benefits of following microscopical examination of hair with DNA analysis.

Other associated ASTM standards are discussed in the guide, and a comprehensive list of references is included. An FSSP should use this guide and other provided references if providing microscopical hair examination services.