

Standard Practice for Establishing an Examination Scheme for Explosive Residues



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?

Explosive residues from materials such as black powder, smokeless powder, dynamite, and pyrotechnic mixtures are often recovered during the investigation of events involving an explosion. The residues include trace amounts of intact explosive materials as well as their post-blast reaction products.

The purpose of this standard is to provide guidance for the evaluation, selection, and application of analytical techniques that form the basis of an examination scheme for the identification of explosive residues. It also covers the analytical requirements for the identification of a variety of explosive residues.

WHY IS THIS STANDARD IMPORTANT? WHAT ARE ITS BENEFITS?

This standard provides a foundation for the consistent application of analytical techniques for the identification of explosive residues, which include trace amounts of intact explosive materials as well as their post-blast reaction products. It describes methods for the development of identifying information that follows an efficient order of testing. Adherence to the standard ensures that the analytical methods and instrumental techniques used in the identification of explosive residues are fit-for-purpose.

Forensic science service providers that test explosive residues are encouraged to meet these minimum standards.

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

This standard is designed to aid in the development of an analytical scheme for the examination and identification of explosive residues that are submitted to forensic science service providers as evidence.

Requirements for the appropriate selection and use of visual, physical, analytical, and instrumental techniques that provide structural and chemical information for the identification of explosive residues are established. It also describes the composition of a variety of explosive materials, their reaction products, and the analytical requirements for their associated explosive residues.

This standard includes a flowchart illustrating a general scheme for explosive residue examinations. The standard highlights other ASTM standards and references that provide greater depth of coverage and guidance on specific analytical techniques and concepts related to the identification of explosive residues.

Basic guidance for the documentation of case notes, reporting of results, and quality assurance practices related to the prevention of contamination when working with explosive residue evidence samples are presented.

This is a minimum standard of practice, which means that additional tests beyond those required in the standard may be necessary.

