

Guide for the Detection of Footwear and Tire Impressions in the Laboratory (03/2005)

1. Scope

1.1 This Guide provides procedures for the detection of footwear and tire impressions in the laboratory.

1.2 The particular procedures and methods employed in a given case will depend on the nature and quality of the evidence.

1.3 This Guide may not cover all aspects of unusual or uncommon conditions.

1.4 This Guide 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 Guide to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1.5 This Guide is not intended as a substitute for training in the detection of forensic footwear and tire track evidence. Completion of a training program and experience in these skills are essential to understanding and applying the principles outlined in this Guide.

2. Terminology

Refer to the *Standard for Terminology Used for Forensic Footwear and Tire Impression Evidence* for a definition of terms used in this document.

3. Significance and Use

3.1 The procedures outlined here are grounded in the generally accepted body of knowledge and experience for the detection of footwear and tire impression evidence. By following these procedures, a forensic footwear and tire examiner can detect both patent and latent impressions.

3.2 Footwear and tire tread impressions are detected in the laboratory for future documentation, collection, and examination.

4. Interferences

4.1 Footwear and tire evidence may have inherent limitations that can interfere with the procedures in this Guide. Limitations, when known, should be noted and recorded.

4.2 Limitations can be due to substrate features, quality of original impressions, and method of collection.

5. Equipment and Requirements

5.1 Electrostatic lifting device

5.2 Electrostatic detection device

5.3 Light sources of sufficient type and intensity to allow for detection of impression evidence

Note: Light sources may include natural light, incandescent light, fiber optic, fluorescent light, or forensic light sources of varying wavelengths.

5.4 Photographic equipment

5.5 Materials for physical and chemical enhancement

5.6 Digital imaging equipment and software

6. Procedures

The following procedures may be used, as appropriate, depending on the composition of the impression evidence and the substrate material. The order of the following detection methods may vary.

6.1 Look for visible impressions utilizing natural and/or artificial light sources.

6.2 Use oblique, coaxial, and polarized light to detect less visible and latent impressions.

6.3 Use electrostatic lifting device to search for latent dust impressions.

6.4 Document and/or photograph impressions prior to and after any procedure.

6.5 Use fingerprint powder to develop latent impressions on nonporous surfaces, as appropriate.

6.6 Use physical and/or chemical methods to develop and/or enhance faint and latent bloody impressions and to develop and/or enhance nonblood impressions.

7. Report

7.1 Procedures utilized and impressions detected should be documented and may also appear in a report.

8. Bibliography

Bodziak, W. J. Footwear Impression Evidence, 2nd ed.; CRC Press: Boca Raton, FL, 2000.

Cassidy, M. J. Footwear Identification; Public Relations Branch of the Royal Canadian Mounted Police: 1980. (Reprinted by Lightning Powder Company, Inc. 1995.)

IAI Recommended Course of Study for Footwear & Tire Track Examiners; International Assoc. Identification: Mendota Htgs., MN, 1995.

Nause, L. Forensic Tire Impression Identification Canadian Police Research Centre: Ottawa, ON, Canada, 2001.