



E60 Size Variations Associated With the Different Methods of Recording Outsole Impressions of Reference Footwear for Comparisons

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After attending this presentation, attendees will have a better understanding of the amount of size variation tolerances that should be given for test impressions when performing footwear comparison examinations.

This presentation will impact the forensic science community by describing and quantifying the potential size variations observed in the creation of test impressions of known shoes.

Size determinations of footwear impressions are an important aspect of the general footwear examination scheme, as significant differences in size can instantly exclude a shoe as having been the donor of a particular footwear impression. There are several common methods and procedures for recording test impressions to permit a thorough comparison of the questioned impression with a known shoe.

Across agencies, policies and procedures regarding the creation of test impressions for known shoes may not be available and/or are not very prescriptive, thus allowing the footwear examiner to resort to personal preference in how these impressions are created. Test impressions are generally created on various types of surfaces with some degree of force applied to ensure a thorough recording of the outsole characteristics. The examiner will typically create a shoe's test impressions by wearing the known shoe and walking over a substrate, which creates a known reproduction of the shoe's outsole using a transfer medium such as ink, powders, inkless chemical treatments, and oil-based mediums. Variables such as substrate composition, method of generating the test impression (e.g., walking, jumping, stomping), weight of individual, size of the foot in relation to the shoe, material composition of outsole, etc., may cause variations in the overall appearance and perceived size of the impression. These size variations may be more or less prevalent in different portions of the outsole (e.g., heel, outsole, and ball).

Although such variations are understood by the practitioner community, significant effort has not yet been directed toward quantifying the extent by which footwear impressions may vary. Thirteen new pairs of shoes that were representative of outsoles commonly observed in footwear examination casework were obtained for purposes of testing these variables. This presentation will discuss the variations observed and lay a foundation for further research regarding the significance of these findings and how they may impact footwear examination conclusions.

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Footwear, Test Impressions, Size Variation