INDIANAPOLIS-MARION COUNTY FORENSIC SERVICES AGENCY

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EVIDENCE SUBMISSION GUIDELINE #5

GLASS FRAGMENTS FOR FORENSIC ANALYSIS

NOTE: The I-MCFSA Laboratory does not do examination of glass evidence; however, this agency can provide useful information and advice on packaging the evidence. The I-MCFSA will coordinate your request with the Indiana State Police Laboratory in Indianapolis, Indiana.

INTRODUCTION

Even though glass is a liquid, to us it appears solid. Glass is made by heating silica sand with soda and lime--and sometimes other materials--to a molten mass, then cooling it so quickly that there is no time for crystals to form in the glass. It is then processed by rolling into sheets of glass, or by blowing or molding to the desired shape. It is not viscous like other liquids, but it looks rigid. The value of glass fragments as evidence is not always fully recognized. Windows, automobile glass, broken bottles and other glass objects may be crucial evidence in burglaries, murders, hit-and-run and many other types of crimes. It is known that any person standing in close proximity to glass when it is broken can pick up fragments of the broken glass, particularly on clothing. Consequently, the clothing of burglary suspects in cases where windows have been broken will often retain microscopic glass fragments. Frequently, as a result of hit-and-run accidents, headlight lenses and other lamps are broken. Less common, but also possible, is the breaking of windshield glass, tempered glass, and mirrors. Therefore, both the scene of the accident and the clothing of the victim can be sources of glass fragments.

COLLECTION, PRESERVATION, MARKING AND TRANSPORTATION OF GLASS

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A. FRAGMENTS OF MICROSCOPIC SIZE

1. **COLLECTION PROCEDURE:**
Microscopic fragments are usually found on clothing, and shoes. Keep handling to a minimum, wrap the articles of clothing SEPARATELY and label. Wet or bloodstained clothing should first be dried before packaging in paper. Other objects such as tools or bullets may contain glass fragments and are packaged as described below.

Carefully place in a container into which any debris will remain inside the packaging and the object will comfortably fit. **DO NOT PACK WITH COTTON OR OTHER PROTECTIVE MATERIAL DIRECTLY TOUCHING**
OBJECT. To prevent raffling, object may be wrapped and sealed in butcher or brown paper and packed with crumpled paper or packing material.

Seal completely, leaving no holes or open seams through which the glass may be lost should it become loose from the object.

Label container completely and transport to the IMPD Property Room.

B. LARGE VISIBLE FRAGMENTS

1. COLLECTION PROCEDURE:

There is a chance that physical matching ("jig-saw" type) may be accomplished with the fragments. Therefore, collect <u>all</u> the fragments present to permit reconstruction. If the nature of the breaking force or its direction is required, all fragments should be collected. The glass should be placed in a sealed paper bindle or a folded and sealed paper or plastic bag, depending on size. Large pieces of glass with sharp edges should be put into sealed containers in which they will not cut their way through.

2. MARKING AND PACKAGING PROCEDURE:

Place in pill box or similar boxes with <u>tight-fitting lids</u>.

DO NOT USE GLASS CONTAINERS.

If glass is submitted for purposes of determining direction of impact of a bullet or other fracture analysis, **RECORD WHICH SIDE OF GLASS WAS ON THE <u>OUTSIDE</u> OF THE WINDOW AND WHICH SIDE WAS ON THE <u>INSIDE</u>.**

C. COMPARISON SAMPLES

1. COLLECTION PROCEDURES:

The laboratory examination of glass fragments is almost exclusively a process of comparison. For this reason, as much broken glass as possible must always accompany the rest of the evidence submitted. If size limitations preclude collecting all the glass, always attempt to obtain a sample from an area near the point of impact and then collect and mark separate specimens from distant corners of the pane as well. If multiple sources of glass have been broken, a standard from each source should be obtained.

ALWAYS KEEP THE COMPARISON SAMPLES SEPARATE FROM THE QUESTIONED FRAGMENTS. Place in separate containers and label accurately.

RESULTS POSSIBLE FROM LABORATORY EXAMINATION OF GLASS

If the pieces of broken glass can be made to fit together in the manner of a jig-saw puzzle, positive association can be made.

Even glass fragments as small as the head of a pin can be compared. However, even if unusual properties are present, only a strong indication of common origin can be given, not an absolute identification.

If a window has been struck with a blunt instrument such as a rock, stick or fist, it is possible to determine the side of impact and the nature of the force involved.

If a window has been penetrated by a bullet, it is possible to determine the direction from which it was fired.

If two or more bullet holes are in close proximity, it is possible to determine the sequence of firing.

Please direct any further questions to the I-MCFSA laboratory at (317) 327-3670.

Evidence Submission Guideline #5 adapted from Indiana State Police Laboratory Physical Evidence Bulletins.