TITLE: Fabric Examination

A. PURPOSE: To define a method by which fabric will be examined and / or compared.

B. **RESPONSIBILITY:**

Forensic Science Examiner who has successfully completed physical match training is accordance with the Trace Section Training Manual (SOP-TR-01)

The Director or Supervisor may act as the co-signor of a report, which includes fabric comparisons

C. SAFETY:

The appropriate measures for the proper handling of biohazard materials, sharps instruments and chemicals will be used according to the Connecticut State Forensic Science Laboratory Safety Manual.

D. PROCEDURE: Set up

1. The examiner will use his / her discretion to assess the probative value of the evidence; as well as, determine the types and extent of the examinations conducted.
2. The examiner may deem it necessary to vary from the set fabric analysis protocol based on the evidence submitted. If a variation in the fabric analysis procedure is necessary, the submitting agency will be notified.
3. If at any time during the comparison of a known and an unknown fabric the examiner determines a significant difference, no further examinations will be conducted and the fabric will be deemed "dissimilar".

E. PROCEDURE: Documentation

1. Evidence will be documented. (SOP-TR-05) Evidence Documentation.
2. Evidence and fabric samples examined in the Trace Section will be documented on the appropriate Quality Record Worksheet. The required information will be recorded. These worksheet will remain in the case jacket.
3. The examiner may photo document fabric-type evidence.

F. PROCEDURE: Collection

1. Questioned and known fabric samples may be submitted to the laboratory as piece(s) of fabric or as a component of a garment.

2. Fabric evidence may be transferred from other sections of the Laboratory to the Trace Section for further examination.

3. Fabric may be removed from other types of evidence during examination within the Trace Section.

4. The examiner will determine the best method to remove a sample of fabric from a garment based on the evidence submitted.

G. PROCEDRUE: Analysis and Comparison

1. Topical debris which is adhering fabric evidence may be removed prior to analysis.
2. Upon comparing a questioned and a known fabric sample the examiner may first attempt to determine if a physical match of fabric may be made. The examiner will determine if two samples may be physically matched together. If two samples are physically matched together the examiner may photograph the "matched" area and may include this photograph in the report.
3. If an examiner determines that two samples are a physical match, thus the two items were once one continuous piece, no further examinations may be necessary.
4. When comparing an unknown and a known fabric sample the following scheme will generally be followed, based on the examiner's discretion – all or some of the following may be used: Comparison of-
   a. Gross Overall Physical Characteristics – Macroscopic / Microscopic Examination
   b. Physical Characteristics of the fabric Structure :knit construction / weave construction / non-woven construction
   c. Composition of the construction: plies, strands or fibers-fiber type
   d. Instrumental analysis may be used : FT-IR

<u>*The fabric sample used for visual-type examinations will then be used for instrumental analysis.</u>

5. Supplemental examinations may be utilized at the discretion of the examiner for the determination of location, recovery, collection, identification or comparison of fabric. These examinations may include UV light, alternate light source (Crime Lights-brand), florescence microscopy, microspectrophotometery, solubility or SEM EDAX. If one or more of these supplemental forms of examination are utilized, their use will be documented in the case jacket.

   ** If a fabric sample will be examined via SEM EDAX, an examiner from the Chemistry Section of the Forensic Science Laboratory may perform the analytical analysis needed and provide the data/ results/ images to the Trace Evidence Examiner. The data / results / images provided will be included in the case jacket for the case examined.

H. PROCEDURE: Storage

1. Fabric samples may be packaged / stored on a paper fold, plastic sleeve or between glass microscope slides or a similar method. The examiner will determine the best method to secure fabric -type evidence for examination and / or storage. A variation of the previously listed methods may be used.
2. Retained fabric evidence from a case will be placed in a sealed envelope with the examiner's initials across the seal and stored in the appropriate long-term storage area.

I. PROCEDURE: Report Writing

1. The examiner will assess the macroscopic / microscopic optical results and comparisons and analytical data (instrumental analysis) along with utilizing their training and experience to determine if two fabric samples are similar or dissimilar.
2. Upon the completion of a fabric comparison, the examiner may utilize wording similar to those listed below. The examiner will use their training and experience to draft a report, which reflects the results obtained on a case-by-case basis.

   Typical statements used when writing a report may include:

   *Submission #1 consisted of a white knit nylon fabric.

   * Submission #1 consisted of white knit nylon fabric.

   This fabric exhibited similar construction and composition as the

   fabric located in submission #2.

*Based on a comparison of the construction characteristics examined, submission #1 (piece of fabric) and submission #2 (piece of fabric) exhibited similar construction characteristics.

or

*Submission #1 (fabric) exhibited similar compositions and construction characteristics to submission #2 (fabric).

The examiner will consult with the co-signer to draft a report, which best reflects the results obtained.