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| LAB-LP-03 | Latent Prints Exam Counting Worksheet | RES06262012 |</p>
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LATENT PRINTS OVERVIEW

1 Scope of Services

1.1 Latent Print Processing Routine Examination

A. Visual examination of evidence for latent, patent, or plastic prints will precede any latent print processing techniques applied.

B. The forensic scientist has the discretion to choose and apply the appropriate processing techniques or combination of techniques and preservation methods or combination of methods that are available, approved for use, and included in the Latent Print Standard Operating Procedures.

C. Syringes submitted for a controlled substance related offense will not be examined for latent prints without a request letter from the prosecuting attorney. Uncapped syringes will not be examined for latent prints until rendered safe by the submitting agency.

D. Fired projectiles will not be examined for latent prints.

E. Evidence related to misdemeanor controlled substance offenses will not be examined for latent prints without a request from the prosecuting attorney.

F. Evidence that was not submitted for latent print examination prior to controlled substance analysis will not be examined for latent prints without a request from the prosecuting attorney. Exceptions can be made with supervisory approval.

G. If more than 10 bundles or packaging from more than 10 bundles are submitted for latent print examination, the submitting officer will select up to 10 for examination. This includes but is not limited to bundles of suspected controlled substances and currency and their packaging.

1.2 Latent Print Comparison Routine Examination

A. A latent print is analyzed to determine if it is suitable for identification. A suitable latent print possesses sufficient friction ridge detail and clarity for a conclusion to be reached.

B. Latent prints determined suitable for identification are compared to exemplars submitted or those on file at DPS and/or the FBI.

C. Conclusions that may be reached and reported for latent prints determined suitable include: Identification, Exclusion, or Inconclusive.

D. Unidentified latent prints may be forwarded to the Latent AFIS Section for an automated search at the discretion of the forensic scientist or the customer’s request.

2 Related Documents

Validations and Performance Verifications (CLS Manual)

Case Acceptance and Analysis Policies (CLS Manual)

Friction Ridge Analysis (CLS Manual)
3 Forensic Scientist Approval

Demonstration of competency in the use of Latent Prints Standard Operating Procedures is required prior to independent casework. The following areas require director approval to allow independent casework by a forensic scientist:

1. Latent Print Processing
2. Latent Print Comparison

4 Proficiency

A. Latent Print Processing
   1. Forensic scientists performing latent print processing participate at least once in the accreditation cycle with an internal Latent Print Processing Testing Program.
   2. Examination, preservation, and analysis of observed and/or developed latent prints is not required.

B. Latent Print Comparison
   1. Forensic scientists conducting latent print comparisons participate annually with a Latent Print Examination Forensic Testing Program.
   2. Due to limitations of shared testing material, documentation of analysis and verification may be solely on the Latent Print Comparison Worksheet (LAB-LP-04). No documentation on exemplars is required.

5 Method and Process Validation

Newly proposed/approved procedures will be validated. A validation plan will include the basic parameters listed in Chapter 51 of the CLS Manual as applicable and appropriate acceptance criteria based on the nature of the method being validated.
## Revision History

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REAGENTS

1 Scope
Establish quality assurance guidelines for reagents, chemical preparations and solvents used in Latent Print Processing

2 Related Documents
Reagents (LOG-03-08)

3 Practice
A. A log will be maintained for each prepared reagent as applicable.

B. The log, or equivalent documentation, will include the following information:
   1. Identity of the reagent
   2. Preparer initials
   3. Preparation date
   4. Initials of the analyst who performs the quality test on the reagent
   5. Reagent performance will be verified and the results of the quality check documented, unless otherwise specified in the procedure.
      a) Indicate “+” for a positive result.
      b) Indicate “-” for a negative result.

C. No reagent or other chemical preparation will be used in casework if the control test does not perform satisfactorily, is past its applicable expiration date, or when it is not working properly or contaminated.

D. If an analyst has reason to suspect that a reagent or other chemical preparation is not working properly or is contaminated, they must:
   1. Check the reagent or system with proper control samples.
   2. Discard the reagent if it fails the quality check and prepare a new reagent.
   3. No laboratory case work will be performed with these reagents until the problem has been corrected. Inform the quality manager if the problem persists.

4 Records
Reagent preparation log or equivalent documentation
## Revision History

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| 02        | 03/18/2016     | Major Revision – Section 2 added  
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| 03        | 11/20/2017     | Minor Revision – Sections 1 and 3 |

Effective Date: 11/20/2017  
Issued by: QA Coordinator
EQUIPMENT

1 Scope
Identify significant instruments and equipment required to follow laboratory policy in Chapter 48 of the Crime Laboratory Service Manual

2 Related Documents
Laboratory Equipment (CLS Manual)

3 General Requirements
A. Each item of equipment will have a log containing the maintenance records and performance checks for that equipment.
B. Routine cleaning of fuming equipment will not be documented.
C. Equipment will be checked after being moved or if a major repair is performed.
D. If equipment fails or a performance problem is detected, it must be removed from service. The immediate supervisor must be notified.
E. Repair the equipment and perform routine quality control procedures to ensure it is working properly before the equipment is returned to service.
F. The Section Supervisor and/or Technical Point of Contact will determine if the equipment is ready to return to service for routine casework.

4 Specific Equipment
4.1 Humidity Chamber
A. Work instructions: LP-INS-06/LP-INS-12
B. Performance Check: After initial set up and following any repairs, an appropriate chemically treated test print is used as a performance check to determine if the humidity chamber is operating as expected.
C. Approximate conditions for the humidity chamber are preset for the particular procedure and will be monitored during its use.
D. Maintenance: Normal maintenance includes keeping the equipment clean.

4.2 Laser
A. Work instructions: LP-INS-07
B. Performance Check: After initial set up and following any repairs, an appropriate chemically treated test print is used as a performance check to determine if the laser is operating as expected.
C. Approximate conditions for the laser are monitored during its use.
D. Maintenance: Normal maintenance includes keeping the equipment clean.

4.3 Spex CrimeScope
A. Work instructions: LP-INS-11
B. Performance Check: After initial set up and following any repairs, an appropriate chemically treated test print is used as a performance check to determine if the light source is operating as expected.

C. Approximate conditions for the light source are monitored during its use.

D. Maintenance: Normal maintenance includes keeping the equipment clean.

4.4 Balances

A. Calibration
   1. Annual calibration is performed by an external vendor.
   2. A performance check with 1g and 10g weights will be performed after calibration.
   3. Since the tolerance of balances vary, the equipment specifications must be checked to determine the appropriate criteria for satisfactory performance.
   4. Balance performance will be verified whenever it is moved from one location to another.
   5. A record of the calibration and performance check criteria and result will be placed in a log.

B. Maintenance
   Normal maintenance includes keeping the balance clean and level and using the appropriate balance for the weight being measured and precision required.

4.5 Digital Workstation (CPU, Monitor, Server, Backup, Scanner, Camera) (i.e. Foray Workstation)

A. Work instructions: LP-02-16, Digital Imaging of Friction Ridge Impressions

B. Maintenance
   1. Normal maintenance includes keeping the workstation clean.
   2. Forensic scientists and latent print examiners using Foray ADAMS who encounter an error or problem that requires troubleshooting or resolution shall notify an ADAMS Administrator.
   3. Failed backups and resolution will be documented in the Maintenance Log by the ADAMS Administrator.

4.6 Down-flow Workstation

A. Maintenance
   1. A record of filter changes and other maintenance will be maintained in the log.
   2. Normal maintenance includes keeping the equipment clean.

4.7 Fisher Hamilton Forensics Fuming Cabinet

A. Work instructions: LP-INS-08

B. Maintenance: LP-INS-08
   Normal maintenance includes keeping the workstation clean.
4.8 Air Science Fuming Chamber
   A. Work instructions: LP-INS-09
   B. Maintenance: LP-INS-09
       Normal maintenance includes keeping the workstation clean.

4.9 Benchtop Rocker
   A. Work instructions: LP-INS-10
   B. Maintenance: Normal maintenance includes keeping the rocker clean.
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EVIDENCE/CASE DOCUMENTATION

1 Scope
Establish policy concerning the elements of latent print evidence and examination records and their subsequent relationship

2 Latent Print Envelope
2.1 Contents
A. Historical Practice
1. If annotations were present on latent lifts or original/designated representations of captured latent prints, they were considered both evidence and examination records.
2. If there were no annotations on latent lifts, they were considered evidence only.
3. Original/designated representation of captured latent prints retained in printed and/or negative format were considered evidence.

B. Current Practice
1. Evidence includes:
   a) Latent lifts created by DPS Crime Laboratory employees;
   b) Submitted printed latent print images;
   c) Exemplars received as evidence
2. Examination Records include:
   a) Composites, enlargements, quality copies, or other printed latent print images with annotations;
   b) Quality copies of exemplars (submitted, on file at DPS, or obtained from the FBI)

2.2 Conditions of Storage
1. The Latent Print Envelope should be arranged by laboratory abbreviation and numerically by case number in a secure storage area.
2. The laboratory shall define the secure storage location for Latent Print Envelopes.

2.3 Retention
1. The Latent Print Envelope will be retained along with preserved latent print evidence and exemplars used for comparison.
2. Lift cards, casting materials, and gel lifters submitted to the laboratory will be considered physical evidence. Any suitable latent prints will be digitally preserved and physical evidence will be returned to the submitting agency.
3. If the submitting agency requests that the submitted exemplars associated with the case be returned, quality copies suitable for comparison must be prepared and retained in the Latent Print Envelope or in DIMS.
4. A legible copy of preserved latent print evidence that is entered into State's evidence should be maintained in the Latent Print Envelope and the transfer documented in LIMS.

2.4 Release

1. Contents of Latent Print Envelopes considered evidence only are not released pursuant to routine requests for discovery.

2. Contents of Latent Print Envelopes considered both evidence and examination documentation are released pursuant to routine requests for discovery.

3 Case Documentation

A. Administrative Documentation

1. Laboratory Submission Form

2. Case-related Correspondence

B. Technical Records

1. Laboratory Report

2. Latent print worksheet(s) and other case notes

3. Contents of the Latent Print Envelope classified as examination records as defined above.
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| 02        | 07/16/2007     | Addition Title: Evidence/Case Documentation  
Modification Section 2 regarding Contents, Conditions of Storage and Retention of Latent Print Envelopes  
Addition of Section 3 Case Documentation  
Move Section 2 Latent Print Vault Security to Austin Local Document |
| 03        | 03/23/2009     | Major Revision – Section 2.1  
Minor revision – Sections 2.3 and 3 |
| 04        | 10/16/2009     | Major Revision – Section 2.1  
Advisory Board 07/16/2009 |
| 05        | 02/10/2012     | Major Revision – Sections 1, 2, and 3  
Advisory Board 01/04/2012 |
| 06        | 06/26/2012     | Major Revision – Section 3  
Advisory Board 06/12/2012 |
| 07        | 11/18/2013     | Minor Revision – Sections 2.3, 3 |
| 08        | 03/18/2016     | Minor Revision – Sections 2.1, 2.2, and 2.3  
Advisory Board 09/16/2015 |
| 09        | 11/20/2017     | Major Revision – Section 2  
Minor Revision – Sections 2 and 3 |
| 10        | 05/09/2019     | Revision – Sections 2 and 3 |

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Effective Date: 05/09/2019  
Issued by: QA Coordinator
# STANDARD ABBREVIATIONS LIST

## 1 Scope
This is a listing of abbreviations commonly used by forensic scientists and latent print examiners. This list has been generated to assist in the interpretation of case file notes and is not a standardized list of required abbreviations. While as comprehensive as possible, the list may not be complete. The abbreviations are not case sensitive. See also approved abbreviations found in Latent AFIS Policy (AF-01-02) and Abbreviations (CLS Manual).

## 2 Abbreviations
### 2.1 General Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>AS</td>
<td>Anatomical Source</td>
</tr>
<tr>
<td>CCH</td>
<td>Computerized Criminal History</td>
</tr>
<tr>
<td>CJIS</td>
<td>Criminal Justice Information System</td>
</tr>
<tr>
<td>CONT</td>
<td>Continue or Continued</td>
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<td>CRS</td>
<td>Crime Records Service</td>
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<tr>
<td>DL</td>
<td>Driver's License</td>
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<tr>
<td>DOB</td>
<td>Date of Birth</td>
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<tr>
<td>DPS</td>
<td>Department of Public Safety</td>
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<tr>
<td>ELIM</td>
<td>Elimination</td>
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<tr>
<td>ENV</td>
<td>Envelope</td>
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<tr>
<td>EXC</td>
<td>Excluded or Exclude</td>
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<tr>
<td>FP</td>
<td>Fingerprint(s)</td>
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<tr>
<td>FPC</td>
<td>Ten-print Fingerprint Card</td>
</tr>
<tr>
<td>ID</td>
<td>Identification</td>
</tr>
<tr>
<td>INC</td>
<td>Inconclusive</td>
</tr>
<tr>
<td>LG</td>
<td>Large</td>
</tr>
<tr>
<td>LI</td>
<td>Left Index</td>
</tr>
<tr>
<td>LIS</td>
<td>Laboratory Information Sheet</td>
</tr>
<tr>
<td>LM</td>
<td>Left Middle</td>
</tr>
<tr>
<td>LP</td>
<td>Latent Print</td>
</tr>
<tr>
<td>L PALM</td>
<td>Left Palm</td>
</tr>
<tr>
<td>LR</td>
<td>Left Ring</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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</tr>
<tr>
<td>LSF</td>
<td>Laboratory Submission Form</td>
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<tr>
<td>LT</td>
<td>Left Thumb</td>
</tr>
<tr>
<td>MED</td>
<td>Medium</td>
</tr>
<tr>
<td>NS</td>
<td>Not Suitable</td>
</tr>
<tr>
<td>PP</td>
<td>Palm Print(s)</td>
</tr>
<tr>
<td>PWD</td>
<td>Powder</td>
</tr>
<tr>
<td>REF</td>
<td>Reference</td>
</tr>
<tr>
<td>RI</td>
<td>Right Index</td>
</tr>
<tr>
<td>RL</td>
<td>Right Little</td>
</tr>
<tr>
<td>RM</td>
<td>Right Middle</td>
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<tr>
<td>R PALM</td>
<td>Right Palm</td>
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<tr>
<td>S/N</td>
<td>Serial Number</td>
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<td>S</td>
<td>Suitable</td>
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<td>Small</td>
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<td>SR</td>
<td>Search</td>
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<tr>
<td>ST</td>
<td>Stored Image</td>
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<td>SUB</td>
<td>Substance</td>
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<td>SUS</td>
<td>Suspect</td>
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<tr>
<td>T</td>
<td>Total</td>
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<tr>
<td>UCN</td>
<td>Universal Control Number</td>
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<tr>
<td>VAC</td>
<td>Vacuum</td>
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<tr>
<td>VC</td>
<td>Verification Criteria</td>
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<td>Visual Examination</td>
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<td>VIC</td>
<td>Victim</td>
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<td>VIN</td>
<td>Vehicle Identification Number</td>
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2.2 Processing Abbreviations

AB   Amido Black
ALS  Alternate Light Source
AY   Acid Yellow 7
BP   Black Powder
DFO  1,8-Diazafluoren-9-one
FD   Fluorescent Dye
FGV  Fluorescent Gentian Violet
GV   Gentian Violet
IF   Iodine Fuming
IND  1,2-Indanedione
LS   Light Source (includes LASER exam and ALS exam)
MAG  Magnetic
MBD  7-P-Methoxybenzylamino-4-Nitrobenz-2-Oxa-1,3-Diazole
NIN  Ninhydrin
ORO  Oil Red O
PH   Photograph
R6G  Rhodamine 6G
RAM  R6G, Ardrox, MBD
SG   Super Glue Fume
SSA  5-Sulfosalicylic Acid Dihydrate
SSP  Sticky Side Powder
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GLOSSARY OF TERMS

1 General Definitions

ACE-V – Analysis, Comparison, Evaluation, and Verification. The process of analyzing information, performing a visual comparison, evaluating that comparison to arrive at a conclusion, and having that conclusion verified.

Anatomical Source – Area of friction ridge skin an impression came from, i.e, FP, joint, PP, delta, or sole of the foot.

Angles – Formed by the abutting of one ridge against another; never formed by a single ridge.

Characteristics – Distinctive details of the friction ridges, including Level 1, 2, and 3 details (also known as features).

CJIS – Criminal Justice Information System, a system that provides state, local, and federal law enforcement and criminal justice agencies with access to information such as fingerprint records, criminal histories, and sex offender registrations.

Classification – Used to classify, search, and file fingerprints.

Consultation – A significant interaction between forensic scientists regarding one or more impressions in question; or evidence examination between two or more disciplines.

Converging Ridges – Point at which two or more ridges run into each other to form a point.

Core – The approximate center of a finger impression.

Complete Friction Ridge exemplars – A systematic recording of all friction ridge detail appearing on the palmar sides of the hands. This includes the extreme sides of the palms, joints, tips, and sides of the fingers (also known as major case prints).

Dactyloscopy – The science of identification by means of fingerprints.

Delta - That point on a ridge at or nearest to the point of divergence of two type lines, and located at or directly in front of the point of divergence.

Discrepancy – The presence of friction ridge detail in one impression that does not exist in the corresponding area of another impression (compare with dissimilarity).

Dissimilarity – A difference in appearance between two friction ridge impressions (compare with discrepancy).

Distortion – Variances in the reproduction of friction skin caused by factors such as pressure, movement, force, and contact surface.

Divergence – The spreading apart of two ridges which have been running parallel or nearly parallel.

Edgeoscopy – 1. Study of the morphological characteristics of friction ridges. 2. Contour or shape of the edges of friction ridges.

Exclusion – The decision that there are sufficient features in disagreement between two areas of friction ridge impressions to conclude the two impressions did not originate from the same source.
Exemplars (finger, palm, foot) – The prints of an individual, associated with a known or claimed identity, and deliberately recorded electronically, by ink, or by another medium (synonymous with known prints).

Fingerprint – An impression of the friction ridges of all or any part of a finger.

Focal Point – A group of specific features used to narrow down the search target area. These may include the core, delta, crease, scar, or a large field of friction ridge detail such as thenar or hypothenar of the palm. Also known as anchor point.

Friction Ridge – A raised portion of the epidermis on the palmar or plantar skin, consisting of one or more connected ridge units.

Friction Ridge Detail (morphology) – An area comprised of the combination of ridge flow, ridge characteristics, and ridge structure.

Identification – The decision that there are sufficient features in agreement between two areas of friction ridge impressions to conclude the two impressions originated from the same source.

Inconclusive-Due to Exemplars – The decision that a definitive conclusion cannot be reached due to an absence of complete and legible exemplars.

Inconclusive-Due to Latent Print – The decision that a definitive conclusion cannot be reached when one of the following occurs:
   1. Corresponding features are observed but are not sufficient to identify.
   2. Dissimilar features may be observed but not sufficient to exclude.
   3. The latent print does not meet the exclusion criteria.

Latent Print – A transferred impression of friction ridge detail that is not readily visible to the naked eye.

Level 1 detail – Friction ridge flow, pattern type, and general morphological information.

Level 2 detail – Friction ridge paths and associated events, including minutiae.

Level 3 detail – Friction ridge dimensional attributes such as width, edge shapes, and pores.

Natural Breaks – Creases, folds, or scars in the friction ridge skin causing the impression to appear as two or more parts.

Orientation – The location and direction of an area of friction ridge detail. May be denoted by an arrow pointing distally.

Patent Print – Friction ridge detail visible prior to any development.

Pattern Area – The area of a print in which the pattern type is present.

Pattern Types – Arch - Plain – That type of pattern in which the ridges enter upon one side, make a rise or wave in the center, and flow or tend to flow out the opposite side.

Pattern Types - Arch - Tented – That type of pattern which may have an angle, an upthrust, or two (2) of the three (3) basic characteristics of a loop.
Pattern Types - Loop – That type of pattern in which one (1) or more ridges enter upon either side, recurve, touch or pass an imaginary line drawn from the delta to the core and pass out or tend to pass out upon the same side the ridges entered.

1. **Ulnar** – Ridges flow towards the ulna bone (towards the little finger).
2. **Radial** – Ridges flow towards the radius bone (towards the thumb).

Pattern Types - Whorl – That type of pattern that has at least two (2) deltas and a recurve in front of each.

1. **Plain** – One (1) or more ridges which make or tend to make a complete circuit, with two (2) deltas, between which, when an imaginary line is drawn, at least one recurving ridge within the inner pattern area is cut or touched.
2. **Central Pocket Loop** – Consists of at least one recurving ridge, or an obstruction at right angles to the line of flow, with two deltas, between which, when an imaginary line is drawn, no recurving ridge within the inner pattern area is cut or touched.
3. **Double Loop** – Two separate loop formations with two separate and distinct sets of shoulders and two deltas.
4. **Accidental** – A combination of two (2) different types of patterns with the exception of the plain arch, with two (2) or more deltas or a pattern which possesses some of the requirements for two or more different types or a pattern which conforms to none of the definitions.

**Plastic Print** – Three dimensional ridge detail made in a soft, pliable surface such as clay or wax.

**Preserved Latent Print Evidence** – latent, patent, or plastic prints that have been preserved by photography, scanning, lifting, or casting by a DPS Crime Laboratory employee.

**Ridge** – A raised portion of skin on the palmar side of the hands and on the bottom of the feet and toes.

**Ridge Characteristic** – Ridge characteristics apply to the distinguishing qualities in identifying fingerprints; also referred to as minutiae, Galton details or points. Most common level two characteristics are:

1. **Bifurcation** – The forking or dividing of one ridge into two ridges.
   a) **Ridge Island or Enclosure** – It is the result of a ridge splitting, forking, and rejoining again. Consists of two bifurcations.
2. **Dot** – A ridge that is as long as it is wide.
3. **Ridge Ending** – Ridge runs along and then comes into an abrupt ending.
   a) **Short Ridge** – A ridge approximately ¼ inch long. Consists of two ridge endings.

**Simultaneous Impressions** – Two or more impressions left on a surface at the same time that occupy the same relative position to each other.

**Sufficient** – Adequate for a specific function or task such as performing a comparison, testing a conclusion, or arriving at a conclusion.
Sufficient Recurve – That part of a recurving ridge between the shoulders of a loop. It must be free of any appendages abutting upon the outside of the recurve at a right angle.

Target Group (Area) – A unique and distinctive group of level two friction ridge detail that can be searched for and recognized in an exemplar.

Tolerance – The amount of variation in appearance of friction ridge features to be allowed during a comparison should a corresponding print be made available.

Type Lines – The two innermost ridges which start parallel, diverge, and surround or tend to surround the pattern area.

Unnatural Breaks – Areas in the print that are devoid of friction ridges causing the impression to appear as two or more parts.

Verification Criteria – The quantity of level two friction ridge characteristics in agreement between two prints.

2 Definitions for Digital Imaging of Friction Ridge Impressions

Acquisition – Process of obtaining or downloading digital assets.

ADAMS – Authenticated Digital Asset Management System consists of computer hardware and software to include: workstation, server, backup, and computer software to include: Digital Workplace, Adobe Photoshop, Foray Image Calibrator, Grayscale FFT, and Chromatic FFT.

Asset – Any electronic file.

Authentication – The process of determining whether a recording or image is original, continuous, and free from unexplained alterations (e.g., additions, deletions, edits, or artifacts) and is consistent with the stated operation of the recording device used to make it.

Calibration – Image processing to create a 1:1 representation.

Camera RAW – The raw data as it comes directly off the CCD (Charged Coupled Device). No in-camera processing is performed. In order for it to be viewed it must be converted into a conventional file format using the processing power of a computer with appropriate software. The original data remains unchanged while a great degree of flexibility exists to process the data including white balance, exposure latitude and color correction. Due to the nature of camera RAW images, any processing performed to the image must be saved into a secondary format.

Composite – Print-out of any scanned or photographed image.

Digital Workplace – Foray Technologies software program that facilitates image management. Assets acquired into Digital Workplace are authenticated, tracked, and secured on a server.

Export – The process of duplicating assets including related metadata pertaining to the asset and copying them to another location (e.g. memory card, CD-R, or DVD-R). The original asset remains on the system.

Image Processing – Any process intended to improve the visual appearance of an image. Processed images are referred to as working images. Image processing is sometimes referred to as enhancement.
JPEG Standard (.jpg) – Joint Photographer’s Expert Group is a file format used in digital imaging to compress images. Image compression reduces the size of an image file, saves storage space and reduces the time needed to transmit an image from one location to another. The JPEG format is subject to degradation and loss of data each time it is saved.

Lossless Compression – Compression in which no image data is lost and the image can be retrieved in its original form.

Nikon Electronic File Format (.nef) – The proprietary RAW format used in Nikon digital cameras.

Original Image – An accurate and complete replica of the primary image, regardless of media.

Tagged Image File Format (.tif) – A file format used in digital imaging to compress images. Some compression of data occurs, though it is not subject to data degradation.

Working Image – Copy of an original image that may be calibrated or processed for the purpose of comparative analysis. Processed images are considered working images.

3 Literature and Supporting Documentation


Fingerprint Training Manual, Published by the Federal Bureau of Investigation, Identification Division, Technical Section, REV. 11-83.


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REPORT WRITING GUIDELINES

1 Scope

The required elements and reporting statements for latent print examinations performed are included in this document as well as the Crime Laboratory Service Manual (Chapter 54 Laboratory Reports, Letters and Certificates). A wide variety of circumstances may occur, requiring variations in report writing language. However, these guidelines must be followed as closely as possible. Templates of the reporting statements are available in the LIMS by utilizing designated keystrokes.

Bolded and bracketed portions of the reporting statements indicate situational/case specific wording.

2 Related Documents

Report Writing Guidelines (AF-01-03)
Laboratory Submission Form (LAB-201)

3 Latent Print Examination (Processing and Comparison)

3.1 Required Elements

A. Relate evidence and outermost container in the LIMS to the Latent Print Examination request, or reference previous report.

B. If latent print examination was requested but evidence was not examined, indicate the reason(s) for no analysis. This does not apply to submitted exemplars.

C. Report the results for all evidence examined.

D. Indicate in report if any trace evidence or other forensic evidence was collected by reporting forensic scientist and its disposition.

E. Indicate in report if friction ridge impressions were observed, and/or developed, and/or further developed and clarify if suitable or not suitable for identification.

F. For all exclusion (not identified) and inconclusive conclusions, clearly report individual(s) compared and indicate exemplar information for all comparisons.

G. If a case involves comparisons of suitable latent/patent/plastic prints to exemplars of a DPS Crime Laboratory employee, the employee’s name and corresponding SID shall not be listed in the report.

H. For all comparison conclusions, indicate:

1. Item description [item] (include item number, item description, and latent location as necessary)

2. Source [subject name] (include subject name and associated SID if from DPS files, associated FBI UCN if from FBI files, associated DHS EID/FIN if from DHS files, DoD TCN if from DoD files, submitted exemplars, or other identifier as necessary)

3. For identifications, [anatomical source]

4. For inconclusives, [reason] for conclusion
I. For cases in which AFIS is requested by submitting agency but not fulfilled, indicate [reason] for not transferring case to the Latent AFIS Section as specifically requested.

J. For AFIS result, as applicable:
   1. Indicate that searches were conducted.
   2. Indicate databases searched (AFIS, FBI, DHS, DoD, or any combination).
   3. Indicate search results.
      a) If a matching print is found and verified, the search will be reported as “Identified”.
      b) If no matching print was located in the database, the search will be reported as “negative results”. (This does not indicate that no matching print exists in the database).
   4. Indicate if unidentified impressions are stored in database(s).
   5. Provide statute of limitations reporting statement for all charges other than homicide, sexual assault, attempted homicide, child pornography, kidnapping, latent prints in an unknown deceased or questioned death, and arson.

K. Indicate disposition of submitted evidence, derived evidence (photographs, images, and lifts), and exemplars used for comparison.

3.2 Requested Analysis

A. Comparisons
   “The suitable [latent, patent, plastic] print(s) [observed/developed/preserved] was compared to the exemplars from [DPS/FBI/DHS/DoD] files for: [SID/FBI UCN/EID and FIN/TCN] bearing the name [name].”

B. No Comparisons
   “The suitable [latent, patent, plastic] print(s) [observed/developed/preserved (photographed, scanned, or lifted)] was not compared to [subject name] due to [reason].”

C. AFIS Search – Hits (Identification)
   “As a result of the AFIS examinations performed by [name as appears in LIMS], Forensic Scientist at the Texas DPS Austin Crime Laboratory, the suitable latent print was compared to the exemplars from [DPS/FBI/DHS/DoD] files for: [SID/FBI UCN/EID and FIN/TCN] bearing the name [name].”
   “This is a supplemental report. Reference the Latent Print Examination Laboratory Report issued [issue date] and the Latent AFIS Laboratory Report issued [issue date]. The AFIS examinations were performed by [name], Forensic Scientist at the Texas DPS Austin Crime Laboratory.”

   “This is a supplemental report. Reference the Latent Print Examination Laboratory Report issued [issue date]. As a result of the AFIS examinations performed by [name as appears in LIMS], Forensic Scientist at the Texas DPS Austin Crime Laboratory, the suitable latent print was compared to the exemplars from [DPS/FBI/DHS/DoD] files for: [SID/FBI UCN/EID and FIN/TCN] bearing the name [name].”
D. AFIS Search – NS/AF or Negative Search Results
   “The AFIS examinations were performed by [name as appears in LIMS], Forensic Scientist at the Texas DPS Austin Crime Laboratory.”

E. Supplemental Report – Additional Evidence or Individual Submitted for Comparison
   “This is a supplemental report due to [reason]. Reference the Latent Print Examination Laboratory Report issued [issue date].”

3.3 Conclusions

A. No Comparisons – No Individuals to Compare
   “The suitable latent print developed and preserved was not compared.”

B. Preserved but Determined Not Suitable
   “The latent print developed and preserved was determined not suitable for identification.”

C. No Suitable Latent Prints
   “No suitable latent prints were observed or developed.”

D. No Latent Prints
   “No latent prints were observed or developed.”

E. Submitted Exemplars Not Compared
   “Not used for comparison.”

F. Exclusion
   “[Subject name] was excluded as the source of the latent print.”

G. Identification
   “The suitable [latent, patent, plastic] print(s) [observed/developed/preserved] was identified to the [anatomical source] on the [exemplars – submitted or from DPS files for SID #] bearing the name [subject name].”

H. Inconclusive due to Exemplars (Incomplete)
   “The comparison to [subject name] was inconclusive due to insufficient exemplars.”

I. Inconclusive due to Latent Print
   “The comparison to [subject name] was inconclusive due to insufficient detail in the latent print.”

J. AFIS
   1. Not Suitable for AFIS Search
      “The latent print does not meet the criteria for an AFIS search.”

   2. AFIS/FBI Search, No Hit, Stored in ULD
      “An AFIS/FBI search was performed on the suitable latent print developed and preserved with negative results. The latent print was stored in the Unsolved Latent Database.”

   3. AFIS/FBI Search, No Hit, Stored in both ULD and FBI ULF
“An AFIS/FBI search was performed on the suitable latent print developed and preserved with negative results. The latent print was stored in the Unsolved Latent Database and the FBI Unsolved Latent File.”

4. AFIS/FBI/DHS Search, No Hit, Stored in All Databases

“An AFIS/FBI/DHS search was performed with negative results. The latent print was stored in the Unsolved Latent Database, the FBI Unsolved Latent File, and the DHS IDENT Unsolved Latent File.”

5. AFIS/FBI/DHS/DoD Search, No Hit, Stored in All Databases

“An AFIS/FBI/DHS/DoD search was performed with negative results. The latent print was stored in the Unsolved Latent Database, the FBI Unsolved Latent File, the DHS IDENT Unsolved Latent File, and the DoD Unsolved Latent File.”

K. Examination Requested, Evidence Not Examined

1. Syringes

“Latent print examination was not performed on this item. Syringes will not normally be examined for latent prints by the DPS Crime Laboratories. Please submit a written request from the prosecuting attorney for the examination of syringes. Note that any uncapped syringes must be rendered safe. Please review the guidelines in the Customer Handbook at: http://www.dps.texas.gov/CrimeLaboratory/Pubs.htm”

2. Projectiles

“Latent print examination was not performed on this item. Fired projectiles will not be examined for latent prints by the DPS Crime Laboratories. Please review the guidelines in the Customer Handbook at: http://www.dps.texas.gov/CrimeLaboratory/Pubs.htm”

3. Misdemeanor controlled substance offenses

“Latent print examination was not performed on this case. Evidence related to misdemeanor drug offenses is not typically examined for latent prints by the DPS Crime Laboratories. Please submit a written request from the prosecuting attorney for the examination of this misdemeanor drug offense indicating that an examination is needed for adjudication purposes. Please review the guidelines in the Customer Handbook at: http://www.dps.texas.gov/CrimeLaboratory/Pubs.htm”

4. Evidence previously analyzed for controlled substances

“Latent print examination was not performed on this case. Evidence that has previously been analyzed by a DPS Controlled Substance Section is not typically examined for latent prints by the DPS Crime Laboratories. Please submit a written request from the prosecuting attorney indicating that an examination is needed for adjudication purposes. Please review the guidelines in the Customer Handbook at: http://www.dps.texas.gov/CrimeLaboratory/Pubs.htm”
5. Drug bundles

“Latent print examination was not performed on this item per the DPS Latent Prints drug bundle processing policy. Please review the guidelines in the Customer Handbook at: http://www.dps.texas.gov/CrimeLaboratory/Pubs.htm”

3.4 Investigative Leads and Requirements for Further Analysis

A. Subjects without Exemplars

“Submit a fully rolled set of [exemplars] for [name] for comparison.”

B. No Suspect

“If a suspect is developed in this case, submit a fully rolled set of [exemplars] for comparison.”

C. Inconclusive Due to Exemplars

“If further comparisons are required, submit a fully rolled set of [exemplars] for [name] for comparison.”

3.5 Dispositions

A. Evidence

“The [evidence] will be (returned, transferred, or forwarded) to [agency/laboratory section].”

“The exemplars used for comparison will be retained in our files.”

“The preserved latent print evidence will be retained in our files.”

“The [evidence] will be retained in our files.”

“The [evidence] is being retained [reason].”

B. AFIS

1. Notify customer if AFIS search request not fulfilled.
   a) *Austin Crime Laboratory*
      “This case will not be forwarded to the Latent AFIS Section due to [reason].”
   b) *All Regional Crime Laboratories*
      “This case will not be forwarded to the Texas DPS Austin Crime Laboratory Latent AFIS Section due to [reason].”

2. Statute of Limitations

   “Once the statute of limitations has expired, the latent print(s) will be deleted from any unsolved databases in which they are registered. If your agency needs the print(s) to remain in any of these databases indefinitely, please contact the reporting examiner.”

4 Limitations

A. Non-routine casework may not be represented clearly by these reporting statements. It may be necessary to modify reporting statements to accurately reflect the results.

B. Reporting statements may be combined as necessary.
C. Subject names listed in the report may be different than those provided on the submission form. Subject names will reflect the actual names that are present on the exemplars used for comparison. In some instances, the name listed in the report will reflect a signature that is present on the exemplars.

D. Multiple evidentiary items assigned to a single agency item number that have no latent prints or no suitable latent prints observed or developed may be grouped for examination documentation and reporting purposes with a singular result and/or conclusion.

E. For cases where the original report was generated in a legacy LIMS, it is not required to itemize the evidence listed on the legacy report(s); any latent print evidence received in the current LIMS must be itemized.

5 Literature and Supporting Documentation


# Revision History

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| 02        | 02/10/2012     | Major Revision – Sections 1, 2, 3, and 4  
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| 04        | 12/19/2012     | Minor Revision – Section 2.4 B move to 2.6, 2.3 A change “not identified” to “excluded”, 2.4 D change “not identified” to “excluded” |
| 05        | 11/18/2013     | Minor Revision – Sections 1, 2.1, and 2.7  
Major Revision – Sections 2.2-2.5, and 3 |
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| 07        | 03/18/2016     | Minor Revision – Sections 2.1, 2.3, and 2.7  
Major Revision – Section 2.5  
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| 08        | 06/26/2017     | Major Revision – Section 2  
Advisory Board recommendations |
| 09        | 11/20/2017     | Major Revision – Section 2 |
| 10        | 05/09/2019     | Added – Section 2 (Related Documents)  
Revision – Sections 1, 2 (now 3), and 3 (now 4) |
CASE REVIEW

1 Scope
In addition to the technical and administrative review processes noted in Review of Laboratory Records (CLS Manual Chapter 55), the following processes shall be performed as specified. Additional reviews may be performed at the discretion of the reporting forensic scientist, reviewer, and/or supervisor.

2 Related Documents
Examination Verification (CLS Manual 55.5)
Friction Ridge Comparison (LP-04-01)
Technical Review (CLS Manual 55.3)
Administrative Review (CLS Manual 55.4)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)
Latent AFIS Layout Sheet (LAB-AF-01)
Latent Print Technical Review Checklist (LAB-LP-05)

3 Practices

3.1 Verification
A. The verification process for comparison conclusions is outlined in Friction Ridge Comparison (LP-04-01).
B. Verification is a separate process from technical review.

3.2 Technical Review
A. Ensure conclusions are verified and documented.
B. Ensure that evidence review and latent review are documented when necessary.
C. Check for proper examination of evidence, proper sequence of processing techniques, and documentation of observations.
D. If there is preserved latent print evidence and/or exemplars that are being retained with the case, they must be reviewed for proper description and documentation.
E. Ensure reporting forensic scientist's initials are present on Latent AFIS Layout Sheet (LAB-AF-01) or printed requestor notes.
F. The Latent Print Technical Review Checklist (LAB-LP-05) will be completed by the technical reviewer and included in the case record.
G. Technical review is documented in LIMS.
3.3 Evidence Review

When performed, it is a review of physical evidence by a second forensic scientist to ensure an accurate description of the evidence, the application of proper processing techniques (if applicable), and the documentation and/or preservation of ridge detail.

A. A random evidence review of at least five cases per month per forensic scientist as available will be performed by another forensic scientist or the supervisor on cases where no suitable latent prints or no latent prints were present. However, a forensic scientist may request to have another forensic scientist review the evidence at the reporting forensic scientist’s discretion.

B. In cases involving a death where no suitable latent prints were observed, developed, or preserved, a review of the evidence must be performed by a second forensic scientist to ensure that a complete analysis was done.

C. If there is a disagreement between forensic scientists concerning the quality of a print, the reporting forensic scientist should show the reviewer the reasoning and how his/her opinion was reached. If there is still a disagreement between forensic scientists, the latent print will be determined to be Not Suitable for Identification.

D. Disagreements between forensic scientists on the quality of a print must be documented.

E. There is no maximum number of reviews that can take place.

F. Evidence review is documented in LIMS and on the Latent Print Worksheet (LAB-LP-01).

3.4 Latent Review

A. A second forensic scientist reviews the suitability of the preserved latent print evidence. If there is a disagreement between forensic scientists concerning the quality of a print, the reporting forensic scientist should show the reviewer the reasoning and how his/her opinion was reached. If there is still a disagreement between forensic scientists, the latent print will be determined to be Not Suitable for Identification.

B. Disagreements between forensic scientists on the quality of a print must be documented.

C. Review is documented in LIMS and on the composite(s) when performed. Documentation of the review will be added to the Latent Print Worksheet (LAB-LP-01) when finalized.

D. Inter-laboratory Latent Reviews - DPS laboratories may request review from another DPS Laboratory.

1. The requesting DPS Laboratory will forward the relevant composite(s) or electronic equivalent. An electronic equivalent for these purposes is a digital scan of the composite(s) that allows the reviewer to observe the analysis documentation of anatomical source and orientation arrow, as well as descriptions on the composite, but does not require a resolution sufficient to examine the image(s) of the latent print.

   a) Electronic copies of composites are considered convenience copies and are to be used for reference during review. These are not considered part of the case record.
b) If documentation is necessary, the reviewer will create an additional composite to be retained in the case record.

c) Reviews performed electronically will be documented in LIMS when performed. Documentation of the review will be added to the composite and Latent Print Worksheet (LAB-LP-01) before technical review.

2. Reviewing laboratory will not make a new laboratory case number.
**Revision History**

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| 03        | 05/19/2010     | Major Revision – Sections 2.1, 2.3, and 2.4  
Advisory Board 03/29/2009 |
| 04        | 02/10/2012     | Major Revision – Sections 2 and 3  
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| 05        | 06/26/2012     | Major Revision – Sections 3.2, 3.3, and 3.4  
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| 06        | 12/19/2012     | Minor Revision |
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| 08        | 01/01/2015     | Minor Revision – Section 3.3  
Advisory Board recommendations |
| 09        | 07/14/2015     | Major Revision - Section 3.4 |
| 10        | 03/18/2016     | Minor Revision – Section 2  
Major Revision – Sections 3.2, 3.3, and 3.4  
Advisory Board 09/16/2015 |
| 11        | 11/20/2017     | Major Revision – Sections 1 and 3 |
| 12        | 05/09/2019     | Revision – All sections |
LATENT PRINT EXAM COUNTING

1 General Instructions

The information requested by LIMS is used for uniform statistical reporting to document the number of total examinations made for a case. Enter all examination information in LIMS prior to technical review.

2 Examination Information

Total Articles Processed/Examined – Indicate with a number value the total number of articles/items/exhibits processed and/or submitted latent print lift cards examined.

Suitable Prints Examined – Indicate with a number value the total number of suitable prints examined.

Comparisons – Indicate with a number value the total number of latent to inked, latent to latent, and inked to inked comparisons performed.

Individuals Compared – Indicate with a number value the total number of suspects, victims, and elimination individuals compared.

Prints Identified – Indicate with a number value the total number of prints that were identified to suspects, victims, or elimination individuals.

Individuals Identified – Indicate with a number value the total number of suspects, victims, and elimination identifications made.

Photographs Taken – Indicate with a number value the total number of photographs taken by the individual forensic scientist as listed on the Latent Print Worksheet. Do not count the photographs that were taken at a crime scene or by another forensic scientist or section pertaining to the requested service.

Latent Lifts Collected – Indicate with a number value the total number of latent lift cards collected by the individual forensic scientist as listed on the Latent Print Worksheet.

Scans Taken – Indicate with a number value the total number of scans taken by the individual forensic scientist as listed on the Latent Print Worksheet.

Images Processed – Indicate with a number value the total number of processed images including multiple processed images of a single original image.
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Advisory Board recommendations |
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| 05        | 12/19/2012     | Minor Revision |
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Minor Revision – Section 1 |
| 08        | 05/09/2019     | Revision – Section 2 |
PHYSICAL EVIDENCE EXAMINATION

1 Scope
The primary purpose of this procedure is to establish uniform documentation and collection methods that will be utilized by the Latent Prints Section.

The forensic scientist initially examining the evidence is primarily responsible for the preservation and possible collection of evidentiary materials that may be on the evidence.

Due to the composition of latent prints, they can sometimes be destroyed by contact with other evidence. Evidence being submitted for latent print examination must be handled as little as possible to minimize loss of potential latent print evidence. Evidence should be processed as soon as possible so potential latent print evidence is not left to the environment's effects.

The forensic scientist will be given flexibility to determine an appropriate course of action in regard to the collection, preservation, and processing of evidence with the ultimate goal of quality and efficiency. The procedures presented are intended to assist the forensic scientist in the examination of physical evidence. They are to be used in conjunction with all applicable laboratory policies, good laboratory practice, and proper scientific methodology.

2 Related Documents
Lifting Techniques (LP-02-15)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)
Laboratory Submission Form (LAB-201)
Laboratory Information Sheet (LAB-403, LAB-404)

3 Safety
A. Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection, as applicable.

B. All evidence that contains broken glass should be handled carefully and, if necessary, with the type of hand protection to prevent accidental cutting. Large pieces of broken glass and sharp/pointed evidence (knives) should be packaged in such a manner that the pieces cannot protrude from the package.

C. Large and heavy evidence should never be picked up by one person and moved by hand unless the proper safety belts are worn. The use of hand trucks and dollies is recommended to move any evidence over 50 pounds.

D. For large amounts of possible biological materials, use disposable coats, gloves, and approved eye protection, and a mask. For small amounts, the use of a regular lab coat can be substituted.

E. All firearms should be treated as if loaded. They must be rendered safe prior to any handling, marking and/or packaging by the forensic scientist. Rendering a firearm safe does not necessarily mean that it must be unloaded. It means that it must be
placed in such a condition that it cannot be fired if it is dropped or the trigger accidentally pulled.

4 Equipment, Materials, and Reagents

Varies with the type of technique used to develop latent prints

- Envelopes, tape, working paper
- Evidence marking pens or scribing tool
- Boxes, paper envelopes, plastic bags, or appropriate evidence containers
- Latent Print Envelope

5 Standards and Controls

None

6 Procedure

1. Obtain the evidence.

2. Upon receipt of the evidence, verify that the Laboratory Submission Form is complete and accurate. If changes are made by the forensic scientist, ensure there is documentation supporting the reason for any changes.

3. Identify the forensic request(s) made and review whether the evidence has been processed in the proper sequence of disciplines, especially with regard to potentially destructive examination techniques.

4. Prepare a clean work surface.

5. Ensure that the outermost evidence container is marked with, at a minimum, the case number and forensic scientist’s initials.

6. Open the container making sure not to break previous seals if at all possible.

7. Perform a visual examination of the evidence with gloved hands (if applicable) prior to processing.
   a) Document any potential evidence that is not related to Latent Prints and take appropriate action (i.e. communicate with the submitting agency or consult with appropriate disciplines).
   b) A photocopy or photograph of a porous item must be made prior to processing if:
      i. There is a forensic need to preserve information present on the item, and
      ii. The processing technique will cause ink to run, dissolve, or otherwise obliterate the information present on the item.
   c) Document the presence or absence of any latent, patent, or plastic prints present on the evidence prior to processing. If preservation is required, proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16).

8. Plan an approach to process the evidence for latent prints. Keep in mind the sequential process for each technique. Perform the processing technique or series of processing techniques in sequence. If the evidence is not processed in accordance with the routine sequence, document the variance.
9. After each processing technique or series of processing techniques, examine the evidence and document the presence or absence of latent prints. If preservation is required, proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) or Lifting Techniques (LP-02-15).

10. Document the sequence of examinations and activities performed to include the processing technique or series of processing techniques and the respective results on a Laboratory Information Sheet (LAB-403, LAB-404), Latent Print Worksheet (LAB-LP-01), or LIMS.

**Note:** When Laboratory Information Sheets and/or LIMS are used to document observations and processing techniques performed, required information must be incorporated into the Latent Print Worksheet (LAB-LP-01) prior to case review. This incorporation can be a single-line summary.

11. If latent prints are submitted for comparison,
   a) **Label with case number, forensic scientist’s initials, and the LIMS number.**
   b) **Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) for acquisition and processing of latent prints that are potentially suitable for identification.**
   c) **Proceed to Friction Ridge Comparison (LP-04-01) for examination of prints.**

12. If latent prints are submitted in a digital format for comparison,
   a) **Label the media with case number, forensic scientist’s initials, and the LIMS number.**
   b) **Prepare a Contact Sheet of the submitted evidence image(s).**
   c) **Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) for acquisition and processing of LP images potentially suitable for identification.**
   d) **Proceed to Friction Ridge Comparison (LP-04-01) for examination of submitted LP Images.**

13. If latent prints are transferred to the Latent Prints section after an automated search with positive results,
   a) **Ensure all relevant potential candidate information and/or exemplars needed for comparison are obtained.**
   b) **Proceed to Friction Ridge Comparison (LP-04-01).**

14. Following completion of processing and review of any digital imaging and evidence (if applicable), mark the evidence with the lab case number, forensic scientist’s initials, and the LIMS item number. If the evidence is too small to label or if markings may interfere with other forensic disciplines examining the evidence, mark the proximal container with the lab case number, forensic scientist’s initials, and the LIMS item number.

15. All evidence to be returned or transferred should be placed back inside its original container. If the evidence cannot be re-packaged in the original
container, it should be packaged appropriately with a note indicating that the original container is inside the new container. The evidence is placed in a secure storage location.

16. Retained lifts, photographs, negatives, composites, digital media, and exemplars are placed into a Latent Print Envelope. The printed information is completed on the front side of the Latent Print Envelope. Upon completion of the case, it is properly sealed and barcoded to secure storage.

7 Interpretation

A. Developed latent prints are analyzed for suitability as defined in Friction Ridge Comparison (LP-04-01).

B. All suitable latent prints will be preserved unless the customer has requested a selection or sampling plan.

8 Limitations

A. Multiple evidentiary items assigned to a single agency item number may be grouped for examination documentation and reporting purposes.

B. There is no scientifically valid method to determine how long a latent print may have been on a surface.

C. Evidence that has been wet or damp will not preclude the possibility of developing latent prints. However, experience has shown that it will likely decrease the ability to recover latent print evidence.

D. All wet or damp evidence should be dried immediately in a vent hood away from direct sunlight, dust, or heavy air current.

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INSTRUCTIONS FOR LATENT PRINT WORKSHEET (LAB-LP-01)

1 General Instructions

The information requested on this worksheet is used to document latent print processing on submitted evidence, preservation of latent prints observed and/or developed, analysis of latent prints, latent print comparison results, and results from automated searches and/or name(s) submitted for comparison to previously unidentified latent print evidence. Multiple worksheet pages can be used. Enter all information on the form. The form is available electronically to facilitate completion on a computer. Additional notes can be made on Laboratory Information Sheets (LAB-403, LAB-404) or in LIMS.

2 Case Information (Required)

Case # – Indicate the unique laboratory case number.

Examiner – Field completed by forensic scientist working the case with the forensic scientist’s initials.

Page Numbers – Field automatically populated and updated when worksheet is printed.

Dates – This field will reflect date case started and date worksheet was opened and/or printed. Indicate the [date started] (either date evidence opened for the case or the date when examinations actually began) by either selecting the date from electronic calendar or manually enter the date. The second date automatically populates when the worksheet is opened. The range of dates will be the same if opened and completed on the same day.

Evidence Review (completed by the forensic scientist(s) or reviewer, as applicable) – Include the reviewer’s handwritten initials and the date the review was completed at the top of the worksheet and initials by the evidence reviewed.

Latent Review (completed by the forensic scientist(s) or reviewer) – Include the reviewer’s handwritten initials and the date the review was completed at the top of the worksheet.

Verification (completed by the forensic scientist(s) who performed the verification) – Include the initials of the forensic scientist(s) and the date the verification was completed at the top of the worksheet and initials by the comparison result.

AFIS Hit, FBI Hit, DHS Hit, and DoD Hit – Indicate in the appropriate box(es) the results of automated searches performed by the Latent AFIS Section.

Additional Evidence (as applicable) – Indicate in the appropriate box if any evidence listed on the form is from an additional evidence submission.

3 Examination Information

3.1 Notes

A. Document name(s) of individual(s) compared and exemplars used during comparisons (submitted, on file at DPS, obtained from the FBI, DHS, or DoD). For submitted exemplars, this shall include the LIMS number and name. For exemplars on file at DPS, this shall include the name and SID number. For exemplars obtained from the FBI, this shall include the name and FBI UCN. For exemplars obtained from the DHS, this shall include the name and DHS FIN. For exemplars obtained from the DoD, this shall include the name and DoD TCN.

B. Document individual(s) not compared when exemplars are not available.
C. Additional notes are at the discretion of the forensic scientist.

3.2 Evidence Description (Required)

LIMS # – Indicate number generated by LIMS during itemization of evidence.

Description – Indicate description of evidence examined.

Visual Examination (VE) – Indicate with a check mark (✓) a visual examination was performed prior to processing.

3.3 Processing Techniques/Series and Preservation (as applicable)

Processing Techniques – Using the drop down menu, the forensic scientist should select the processing technique(s) utilized and list them in the order used. Forensic scientist must indicate with a check mark (✓) in box which technique(s) were used to process the evidence. If clarification of the order is necessary, the forensic scientist will document this on the worksheet or bench notes.

Controls – A plus symbol (+) will indicate that controls were used to document that the latent print processing technique worked; the chemicals used were properly prepared, tested positive, and within the range of the noted shelf-life; and the light source performed as intended.

- SG – view test print placed inside fuming chamber
- FD – view log for preparation, testing, and shelf-life
- LS – view test print
- IF – view test print
- IND – view log for preparation, testing, and shelf-life
- DFO – view log for preparation, testing, and shelf-life
- NIN – view log for preparation, testing, and shelf-life
- AB – view log for preparation, testing, and shelf-life
- SSP – view test print placed on adhesive surface
- GV – view test print placed on adhesive surface
- ORO – view test print
- BP – not required
- AY – view log for preparation, testing, and shelf-life

Preserved – Using the drop down menu, the forensic scientist should select the technique(s) utilized and indicate in the box(es) the number of photographs taken, scans made, or latent lifts collected from each item.

3.4 Analysis (as applicable)

Indicate the number of suitable (S) latent/patent/plastic prints observed, developed, or further developed on each item examined. Indicate the anatomical source (AS) for each suitable print. The anatomical source may be described as FP, PP, tip, side, joint, toe, sole, delta, core, continuous ridges, pattern area, or unknown. Indicate the presence or absence of non-suitable (NS) latent/patent/plastic prints observed, developed, or further developed on each item examined with a Y (yes) or N (no).
3.5 **AFIS Results (as applicable)**

**NS/AF** – Indicate with a check mark (✓) if the suitable latent print does not meet the criteria for an AFIS search.

**AFIS SR** – Indicate with a check mark (✓) if the latent print was searched in the state AFIS database; if the latent print was not identified, it will be registered in the AFIS Unsolved Latent Database (ULD).

**FBI SR** – Indicate with a check mark (✓) if the latent print was searched in the FBI database.

**FBI ST** – Indicate with a check mark (✓) if the latent print was registered in the FBI Unsolved Latent File (ULF).

**DHS SR** – Indicate with a check mark (✓) if the latent print was searched in the DHS database; if the latent print was not identified, it will be registered in the DHS IDENT Unsolved Latent File.

**DoD SR** – Indicate with a check mark (✓) if the latent print was searched in the DoD database; if the latent print was not identified, it will be registered in the DoD Unsolved Latent File.

3.6 **Comparison Results (as applicable)** – Indicate results as follows with required wording in italics:

A. For suitable latent prints identified, indicate *ID*, *[print designation]*, *[subject name]*, and *[verification criteria]*.

B. For suitable latent prints excluded to exemplars compared, indicate *Exclude* or *Excluded*.

C. For Inconclusive due to latent print (any reason), indicated *Inconclusive* and *[reason(s)]*.

D. For Inconclusive due to exemplars (unable to identify or exclude due to an absence of complete and legible exemplars), indicate *Inconclusive* and *[reason(s)]*. 
### Revision History

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Effective Date: 05/09/2019  
Issued by: QA Coordinator
INSTRUCTIONS FOR LATENT PRINT COMPARISON WORKSHEET
(LAB-LP-04)

1 General Instructions

The information requested on this worksheet is used to document latent print comparison of and/or AFIS results for previously unidentified latent print evidence to the following:

- Additional submitted exemplars
- Additional submitted name(s) for comparison
- Unreported automated searches
- Reverse hits

Multiple worksheet pages can be used. Enter all information on the form. The form is available electronically to facilitate completion on a computer. Additional notes can be made on laboratory information sheets or in LIMS.

2 Case Information (Required)

Case # – Indicate the unique laboratory case number.

Examiner – Field completed by forensic scientist working the case with the forensic scientist’s initials.

Page Numbers – Field automatically populated and updated when worksheet is printed.

Dates – This field will reflect date case started and date worksheet was opened and/or printed. Indicate the [date started] (either date evidence opened for the case or the date when examinations actually began) by either selecting the date from electronic calendar or manually enter the date. The second date automatically populates when the worksheet is open. The range of dates will be the same if opened and completed on the same day.

Evidence Review (completed by the forensic scientist(s) or reviewer, as applicable) – Include the reviewer’s handwritten initials and the date the review was completed at the top of the worksheet, and initials by the evidence reviewed.

Latent Review (completed by the forensic scientist(s) or reviewer) – Include the reviewer’s handwritten initials and the date the review was completed at the top of the worksheet.

Verification (completed by the forensic scientist(s) who performed the verification) – Include the initials of the forensic scientist(s) and the date the verification was completed at the top of the worksheet, and initials by the comparison result.

Additional Evidence (as applicable) – Indicate in the appropriate box if any evidence listed on the form is from an additional evidence submission.

AFIS Hit, FBI Hit, DHS Hit, and DoD Hit – Indicate in the appropriate box(es), as applicable, the results of automated searches performed by the Latent AFIS Section.

3 Examination Information

3.1 Notes

A. Document name(s) of individual(s) compared and exemplars used during comparisons (submitted, on file at DPS, or obtained from the FBI, DHS, or DoD). For submitted exemplars, this shall include the LIMS item number and name. For exemplars on file at DPS CRS Archive, this shall include the name and SID number. For exemplars obtained from the FBI, this shall include the name and FBI UCN. For
B. Document individual(s) not compared when exemplars are not available.
C. Additional notes are at the discretion of the forensic scientist.

3.2 Evidence Description (Required)
LIMS # – Indicate the number generated by LIMS during itemization of evidence.

Description – Indicate a description of evidence examined.

3.3 Analysis (as applicable)
Indicate the number of suitable (S) latent/patent/plastic prints observed on each item examined. Indicate the anatomical source (AS), if known, for each suitable print. The anatomical source may be described as FP, PP, tip, side, joint, toe, sole, delta, core, continuous ridges, pattern area, or unknown. Indicate the presence or absence of non-suitable (NS) latent /patent/plastic prints observed on each item examined with a Y (yes) or N (no).

3.4 AFIS Results (as applicable)
NS/AF – Indicate with a check mark (✓) if the latent print does not meet the criteria for an AFIS search.

AFIS SR – Indicate with a check mark (✓) if the latent print was searched in the state AFIS database; if the latent print was not identified, it will be registered in the AFIS Unsolved Latent Database (ULD).

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DoD SR – Indicate with a check mark (✓) if the latent print was searched in the DoD database; if the latent print was not identified, it will be registered in the DoD Unsolved Latent File.

3.5 Comparison Results (as applicable)
Indicate results as follows with required wording in italics:

A. For suitable latent prints identified, indicate ID, [print designation], [subject name], and [verification criteria].

B. For suitable latent prints excluded to exemplars compared, indicate Exclude or Excluded.

C. For Inconclusive due to latent print (any reason), indicate Inconclusive and [reason(s)].

D. For Inconclusive due to exemplars (unable to identify or exclude due to an absence of complete and legible exemplars), indicate Inconclusive and [reason(s)].
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POWDER PROCESSING

1 Scope
Powder processing is the most basic method of developing latent prints on non-porous surfaces. Powder is applied to a surface by lightly dusting over the surface with a soft bristle type brush or duster. Once prints are developed they should be preserved by photography and/or lifted with lifting tape and placed on a lift card.

Black is the most commonly used color of powder (even on dark colored surfaces). However, there are fluorescent powders that may be used, which require the use of an alternate light source and appropriate filters.

2 Related Documents
Latent Print Worksheet (LAB-LP-01)
Lifting Techniques (LP-02-15)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Instructions for Spex CrimeScope (LP-INS-11)
Instructions for Coherent TracER (LP-INS-07)

3 Safety
A. Wear personal protective equipment. This may include but is not limited to gloves, lab coat, and eye protection.
B. Powder can easily be inhaled.
C. Gloves make it difficult to rub out air bubbles once lifting tape is placed over the developed latent print.

4 Equipment, Materials, and Reagents
- Jar of fingerprint powder
- Fingerprint brushes – fiberglass, short bristle brush, or feather duster
- Container to hold powder – shallow dish, lid, or lab weighing dish
- Lifting tape – clear, frosted, or polyethylene. Comes in 1½”, 2”, or 4” widths. Use with tape dispenser or without.
- Lifted latent cards – smooth index stock or commercial lift cards, copy paper for large latent lifts
- Flashlight or good overhead lighting

5 Standards and Controls
None

6 Procedure
6.1 Suggested Steps for Powder Processing
   1. Take the jar of powder and tap the jar into the palm of the hand several times to break up clogs of powder and loosen the powder that has settled.
2. Pour a small amount of powder (two to three tablespoons) into a container.

3. Choose a type of brush to apply powder.
   a) Fiberglass or nylon – to be used on small or large objects.
   b) Feather duster – for larger objects.
   c) Short bristle – for small objects and also used for cleaning off excessive powder on latent prints by lightly brushing in the direction of ridge flow.

4. Hold brush between palms of your hands, rub hands back and forth several times to loosen and fluff out bristles or feathers.
   a) Dip the brush into the container of powder lightly to pick the powder up.
   b) Tap the brush several times with your index finger over container to release excess powder.

5. Apply the powder to the surface by lightly dusting over the surface (only the tips of bristles or feathers should touch the surface).
   a) Twirling motion – fiberglass brush
   b) Back and forth motion – fiberglass, feather duster, or short bristle brush
   c) Figure eight type motion – feather duster
   d) Once a latent print is visible, view the latent print and then apply a few more strokes of powder. If the latent print starts to lighten up or starts looking spotty – stop processing. The latent print is at its maximum contrast. Additional processing will destroy or deteriorate the latent print.

6. Remove the excess powder from the processed evidence.
   a) Tap evidence lightly on counter.
   b) Use short bristle brush (brushing with the flow of ridges).

7. Preserve the latent print for later comparison by either photography or a lifting technique appropriate to the evidence.

8. Make multiple lifts of the same print as necessary.

7 Interpretation
   A. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).
   B. Proceed to either Lifting Techniques (LP-02-15) and/or Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

8 Limitations
Powder Processing should not be used on porous items such as checks, cardboard, paper sacks, etc. A chemical process would be best suited for these types of evidence; however, if the paper or cardboard has a shiny or glossy surface (such as magazine covers or matchbook covers) it could be used.

9 Literature and Supporting Documentation


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| 05        | 11/18/2013     | Minor Revision: Section 6 |
| 06        | 11/20/2017     | Major Revision – Sections 2, 6 and 9 |
| 07        | 05/09/2019     | Revision – Section 2 |
MAGNETIC POWDER PROCESSING

1 Scope

With magnetic powder, there is no brush with fibers or bristles to hold the powder. The powder is actually made up of finely ground metal shavings with colored powder. The powder is applied with a metal rod or wand that has a magnet inside that attracts the magnetic powder.

Black is the most commonly used color of magnetic powder (even on dark colored surfaces). However there are fluorescent magnetic powders that may be used and require the use of an alternate light source and appropriate filters.

2 Related Documents

Latent Print Worksheet (LAB-LP-01)
Powder Processing (LP-02-02)
Lifting Techniques (LP-02-15)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Instructions for Spex CrimeScope (LP-INS-11)
Instructions for Coherent TracER (LP-INS-07)

3 Safety

A. Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.

B. Magnetic Powder Processing is not as messy as Powder Processing. Any overspill can be picked up with the wand and released back into the container. Powder can be easily inhaled.

4 Equipment, Materials, and Reagents

- Magnetic Powder Kit (contains jars of magnetic powder and magnetic wand)
- Lifting tape (same tape as for regular Powder Processing)
- Lift cards (same cards as for regular Powder Processing)
- Flashlight or good overhead lighting

5 Standards and Controls

None

6 Procedure

6.1 Suggested Steps for Magnetic Powder Processing

1. Take the jar of powder and tap the jar into the palm of the hand several times to break up clogs of powder and loosen powder that has settled.

2. Place large bulb end of wand into the jar to pick up metal shavings.

3. Go over the surface using a back and forth motion with only the metal shavings coming in to contact with the surface. CAUTION: If the metal bulb
end comes in to contact with the surface, it could scratch or destroy a latent print.

4. Remove excess powder from the evidence processed.
   a) Tap the evidence lightly on the counter.
   b) Use a short bristle brush (brushing with the flow of ridges).

5. Pull the rod out of the wand to release metal shavings.

6. Preserve the latent print for later comparison by either photography or a lifting technique appropriate to the evidence.

7. Make multiple lifts of the same print as necessary.

7 Interpretation
   A. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).
   B. Proceed to either Lifting Techniques (LP-02-15) and/or Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

8 Limitations
   A. Magnetic Powder Processing is not suited for processing metal objects or porous items such as checks, raw cardboard, or paper sacks. However, it can be used on shiny or glossy surfaces such as magazine covers, match book covers, etc.
   B. Magnetic powder residue may remain on surface after processing. Apply light air current, lightly tap evidence, or lightly brush surface to remove tiny particles that may interfere when lifting latent print with tape.

9 Literature and Supporting Documentation
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IODINE PROCESSING

1 Scope

Iodine Fuming is the oldest chemical technique for developing latent prints on porous and non-porous surfaces. The iodine is applied to a surface by allowing the fumes from the iodine crystals to come in contact with the surface to be processed. Once prints are developed they should be photographed immediately as they will dissipate over a short period of time.

Iodine Fuming reacts with the sebaceous oil in the latent print residue.

It can be used in conjunction with other processes if used in the following order:

1. Iodine fumes
2. IND
3. DFO (1,8-Diazafluoren-9-one)
4. Ninhydrin

2 Related Documents

Latent Print Worksheet (LAB-LP-01)
Ninhydrin Processing (LP-02-05)
DFO (1,8-Diazafluoren-9-one) Processing (LP-02-06)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
IND (1,2-Indanedione) Processing (LP-02-17)
Friction Ridge Comparison (LP-04-01)

3 Safety

A. Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.

B. Iodine crystals and fumes are extremely caustic to metals and also upper respiratory irritants. The fumes can easily be inhaled. Processing should be done in a vent hood, and if done outdoors a fume mask should be worn.

4 Equipment, Materials, and Reagents

- Commercially available Iodine Fuming Kit
- Iodine Crystals
- Large zip lock plastic bag
- Camera

5 Standards and Controls

Rub a finger across your forehead or the back of the neck and press finger on to a clean white card. Apply Iodine Fuming to the card. The fumes will produce positive results if prints are developed.
6 Procedure

6.1 Commercially-available Iodine Fuming Kit

1. Place thumbs over the ampoule in the plastic tube. Position index fingers under the tube at each end of the ampoule. Bend the tube breaking the ampoule to release the iodine crystals.

2. Grasp the wand covering the iodine crystals with your hand.

3. Take a breath and hold it, then place the plastic tube in your mouth and blow onto the surface to be processed.

4. While blowing into the wand, move the other end of the tube in a circular pattern around the area to be fumed. Increase the size of the circular pattern with each revolution. For best results, hold the fuming end of the tube ½” to ¾” from the surface being fumed and rotate the tube end with a slow steady motion.

5. Do not inhale the iodine fumes.

6. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

6.2 Application with Iodine Fuming Bag

1. Place 1 g iodine crystals in the bottom of plastic zip lock bag.

2. Place evidence to be processed in the zip lock bag, and zip the bag shut.

3. Generate heat in bag by shaking bag or placing bag under floodlights.

4. Do not let crystals come in direct contact with the evidence to be processed.

5. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

6.3 Fixing the Latent Print (optional)

1. Pass a hot steam iron or run tap water over the evidence.

2. Preserve the latent print by photography.

7 Interpretation

A. Positive results are obtained when the latent print appears with a coloration ranging from pale yellow to dark brown. Fixing the latent print will alter the color to light or dark purple.

B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

8 Limitations

A. Iodine Fuming is effective on those latent prints of recent origin and less effective as time increases. This may be a function of the absorption of the porous surface.

B. Latent prints developed with Iodine Fuming fade quickly and must be preserved immediately.
9 Literature and Supporting Documentation


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| 04        | 06/26/2012     | Major Revision – Title and Sections 1, 2, 3, and 6  
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| 05        | 03/18/2016     | Minor Revision – Scope, Sections 4, 6.4, and 9  
Advisory Board 09/16/2015 |
| 06        | 11/20/2017     | Major Revision – Section 2 and 9 |
| 07        | 05/09/2019     | Revision – Sections 1, 2, 4, and 6 |
NINHYDRIN PROCESSING

1 Scope

Ninhydrin is a chemical method for developing latent prints on porous surfaces and absorbent materials such as paper, cardboard, and smooth raw wood. This method is based on the reaction of Ninhydrin with the amino acids that are present in the latent print residue. The first known use of Ninhydrin for latent print processing was in the early 1950s. It is sensitive to old prints as well as fresh prints and can be used to develop prints in blood on porous surfaces.

Ninhydrin can be mixed using two carriers: acetone or petroleum ether.

Carriers that Ninhydrin is mixed with can interfere with other types of analyses such as document examinations involving inks and questioned writing. Acetone will cause certain inks to run or dissolve. Questioned document and handwriting analysis should be performed prior to Ninhydrin processing.

Evidence that may have potential DNA evidentiary value may be processed for latent prints with Ninhydrin first. If the offense is sexual in nature or there are obvious blood stains, consult with DNA prior to processing with Ninhydrin.

It can be used in conjunction with other processes if used in the following order:

1. Iodine fumes
2. IND
3. DFO
4. Ninhydrin

2 Specification

Ninhydrin/Petroleum Ether Base
Ninhydrin/Acetone Base

3 Related Documents

Latent Print Worksheet (LAB-LP-01)
Iodine Processing (LP-02-04)
DFO (1,8-Diazafluoren-9-one) Processing (LP-02-06)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
IND (1,2-Indanedione) Processing (LP-02-17)
Friction Ridge Comparison (LP-04-01)
Instructions for Air Science Fingerprint Development Chamber (LP-INS-12)
Instructions for Caron 6105 Fingerprint Development Chamber (LP-INS-06)

4 Safety

A. Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.
B. Ninhydrin should be used in a laboratory fume hood, a well-ventilated area, or outside.

C. Ninhydrin is mixed with a carrier such as methanol, acetone, or petroleum ether (which is highly flammable).

D. Excess is disposed of as any flammable liquid.

5 Equipment, Materials, and Reagents

- Humidity chamber or steam iron
- Camera
- Ninhydrin/Acetone Base
- Ninhydrin/Petroleum Ether Base
- Ninhydrin crystals
- Acetone
- Methanol
- Isopropyl alcohol
- Petroleum Ether
- Stirring device
- Graduated cylinder
- Scale
- Beaker
- Funnel

6 Standards and Controls

Place a test print on paper and allow the perspiration to dry. Apply Ninhydrin to the paper. To accelerate the development, place the paper into a humidity controlled chamber or use an iron. The solution will produce positive results if prints are developed. Date and initial the container and log if the control performs satisfactorily and indicate the results.

7 Procedure

7.1 Reagent Preparation

A. Ninhydrin/Petroleum Ether Base Solution (0.5%)

Ensure glassware is clean. The petroleum ether carrier will not dissolve the Ninhydrin crystals. They must be dissolved in methanol. A stirring device should be used for mixing.

1. Dissolve 5 g Ninhydrin crystals in 30 mL methanol.
2. Add 40 mL isopropyl alcohol and 930 mL petroleum ether.
3. Store reagent in a dark storage bottle. Shelf life is approximately six months.

B. Ninhydrin/Acetone Base Solution (0.6%)

1. The concentration of the Ninhydrin base solution may be altered at the discretion of the forensic scientist to improve the sensitivity on a case by case basis.
2. Dissolve 6 g Ninhydrin crystals in 1000 mL Acetone.
3. Store reagent in a dark storage bottle. Shelf life is approximately six months.
7.2 Application
1. Select the appropriate Ninhydrin base solution depending on the other substances on the surface. Acetone will cause certain inks to dissolve.
2. Apply the Ninhydrin solution to evidence by spraying, dipping, or brushing.
3. After the Ninhydrin has dried, place the processed evidence in a humidity chamber or go over the evidence with a steam iron to accelerate the development process.
4. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography or scanning.
5. Developed latent prints on some dark-colored surfaces may be viewed with a light source for increased contrast.

8 Interpretation
A. Ninhydrin will cause a print to be developed in a pinkish-purple color. These prints must be preserved by photography or scanning.
B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).
C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

9 Limitations
Ninhydrin is best suited for a porous item. If the surface is shiny or glossy, another process might produce better results.

10 Literature and Supporting Documentation
Revision History

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Advisory Board recommendations |
| 04        | 06/26/2012     | Major Revision – Sections 3, 4, and 7.2  
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| 08        | 05/09/2019     | Minor Revision – Sections 1, 3, 7, and 9 |

Effective Date: 05/09/2019
Issued by: QA Coordinator
DFO (1,8-DIAZAFLUOREN-9-ONE) PROCESSING

1 Scope

DFO is used to develop latent prints on porous surfaces. DFO is a Ninhydrin analogue and reacts with the amino acids present in perspiration. It is sensitive to old prints as well as fresh prints and can be used to develop prints in blood on porous surfaces.

Evidence that may have potential DNA evidentiary value should not be processed for latent prints with DFO prior to DNA collection.

Carriers that DFO is mixed with can interfere with other types of analyses such as document examinations involving inks and questioned writing. Questioned document and handwriting analysis should be performed prior to DFO processing.

It can be used in conjunction with other processes if used in the following order:

1. Iodine fumes
2. IND
3. DFO
4. Ninhydrin

2 Specification

DFO Stock solution
DFO Working Solution

3 Related Documents

Latent Print Worksheet (LAB-LP-01)
Iodine Processing (LP-02-04)
Ninhydrin Processing (LP-02-05)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
IND Processing (LP-02-17)
Friction Ridge Comparison (LP-04-01)
Instructions for Air Science Fingerprint Development Chamber (LP-INS-12)
Instructions for Spex CrimeScope (LP-INS-11)
Instructions for Caron 6105 Fingerprint Development Chamber (LP-INS-06)
Instructions for Coherent TracER (LP-INS-07)

4 Safety

A. Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.
B. The reagent is flammable. It is a sensitizer and causes staining of the skin.
C. Mixing must be performed in a vent hood.
D. DFO is mixed with carriers that are highly flammable and irritant. Must be disposed of like any other flammable chemical.
5 Equipment, Materials, and Reagents
- Graduated cylinder
- Propanol
- Acetone
- Xylene
- DFO Stock and Working Solution
- DFO
- Methanol
- Ethyl Acetate
- Glacial acetic acid
- Petroleum Ether
- Oven or iron
- LASER or alternate light source
- Camera
- Scale
- Beaker

6 Standards, Controls, and Calibration
Place a test print on paper and allow the perspiration to dry. Apply DFO working solution to the paper as described in the Application section. To accelerate the development, place the paper into a humidity controlled chamber (no humidity) or use an iron (no steam). Developed prints are observed through an orange/amber viewing filter using a light source. The solution will produce positive results if prints are developed. Date and initial the container and log sheet if the control performs satisfactorily and indicate the results.

7 Procedure
7.1 Reagent Preparation
A. DFO Stock Solution
   1. Ensure glassware is clean.
   2. Dissolve 1 g DFO powder in 180 mL methanol.
   3. Stir until dissolved.
   4. Add 20 mL Glacial Acetic acid.
   5. Store in dark bottles. Shelf life is six months.
B. DFO Working Solution
   1. Prepare: 10 mL Isopropyl alcohol, 50 mL Acetone, 50 mL Xylene, 60 mL DFO Stock Solution, and 830 mL Petroleum Ether.
   2. If the solution is not clear, add additional 10 mL Isopropyl alcohol.
   3. Store in dark bottles. Shelf life six months.

7.2 Application
1. Apply the DFO working solution to evidence for approximately ten seconds.
2. Allow evidence to dry for approximately three minutes.
3. Repeat steps 1 and 2.
4. Heat is then applied to the dried evidence by placing it in an oven that contains no humidity or use an iron with no steam. Heat for ten minutes at 100° C (212° F).

5. View under a laser or other alternate light source as the developed prints may be invisible to the naked eye.

6. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

8 **Interpretation**

A. The prints will appear a pinkish-orange color. However when viewed under various lasers and alternate light sources, the prints will fluoresce brightly and are much more visible, especially on a dark colored surface that might hide prints that have been developed with Ninhydrin alone.

B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

9 **Limitations**

Potential background staining of evidentiary items.

10 **Literature and Supporting Documentation**

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| 08        | 05/09/2019     | Revision – Sections 1 and 3 |
CYANOACRYLATE ESTER (SUPER GLUE) PROCESSING

1 Scope

The super glue process was first used for latent print development by the Japanese police in the late 1970s. A glue containing cyanoacrylate is placed in an aluminum dish on a heating device in an airtight chamber with the evidence. As the glue is heated, the resulting fumes circulate throughout the chamber adhering to latent print residue on the evidence. The developed latent prints can either be photographed with special lighting techniques or further processed with powder or fluorescent dye. The process will develop fresh prints as well as old prints.

2 Related Documents

Latent Print Worksheet (LAB-LP-01)
Powder Processing (LP-02-02)
Magnetic Powder Processing (LP-02-03)
Rhodamine 6G Fluorescent Dye Processing (LP-02-09)
RAM Fluorescent Dye Processing (LP-02-10)
Lifting Techniques (LP-02-15)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Instructions for Fisher Hamilton Forensics Cabinet (LP-INS-08)
Instructions for Air Science Fuming Chamber (LP-INS-09)

3 Safety

Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.

Precautions must be taken as to not get the glue on your skin. If you do get glue on your skin and get attached to something, do not try to pull apart. Use warm, soapy water or acetone and then rub apart to release.

Use in a vent hood or use an exhaust system to remove fumes from the chamber prior to opening the fuming chamber and removing the evidence.

Hydrogen cyanide gas is produced when cyanoacrylate ester (super glue) is heated above 400° Fahrenheit (F). The flash point for HOT STUFF - Original (Red Label) is 176° F to 200° F.

4 Equipment, Materials, and Reagents

Airtight fuming chamber
Glue containing cyanoacrylate (such as super glue)
Aluminum dish to hold glue
Heating device
5 Standards and Controls

Place your prints on the inside of fuming chamber. When they are fully developed, the processing time should be complete.

6 Procedure

6.1 Fuming Tank and Fuming Cabinet

1. Place the aluminum dish on a heating device and pour approximately one teaspoon of glue in the dish.

2. Place the evidence into the fuming chamber either by suspending or standing so all areas are exposed. (Do not suspend directly over glue dish.)

3. Seal up the fuming chamber.

4. Turn on the heating device. Monitor progress of fuming by viewing test print placed on inside of chamber.

5. After latent print(s) are developed (usually 8 to 30 minutes), turn the heating device off and exhaust the fumes from chamber before opening.

6. Remove evidence and view with angle overhead lighting for developed latent prints.

7. If suitable latent prints have been developed, they may be preserved by photography prior to further processing.

8. Depending on the type of evidence additional processing techniques for development of the latent prints may be used:

   a) Powder Processing (LP-02-02) or Magnetic Powder Processing (LP-02-03)

   b) Rhodamine 6G Fluorescent Dye Staining (LP-02-09) or RAM Fluorescent Dye Processing (LP-02-10)

6.2 Fuming Cabinet

See Instructions for Fisher Hamilton Forensics Fuming Cabinet (LP-INS-08)

6.3 Fuming Chamber

See Instructions for Air Science Fuming Chamber (LP-INS-09)

7 Interpretation

A. The latent prints will turn white or light gray in color.

B. Developed latent prints may be preserved prior to further processing. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16).

C. Perform Powder Processing (LP-02-02), Magnetic Powder Processing (LP-02-03), Rhodamine 6G Fluorescent Dye Processing (LP-02-09) or RAM Fluorescent Dye Processing (LP-02-10) as necessary to further process latent prints.

D. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

E. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.
8 Limitations

Fuming times may vary accordingly with the condition and surface of substrate, size of chamber, relative humidity, and heating device used.

Cyanoacrylate Ester (Super Glue) Processing is not used on porous items, such as paper, cardboard or raw wood. However, if surface of these items is a shiny or glossy surface it could be used.

Cyanoacrylate Ester (Super Glue) Processing could interfere with DNA analysis and latent print blood enhancement techniques.

9 Literature and Supporting Documentation

Lee HC and Gaensslen RE. Advances in Fingerprint Technology. 2nd Edition.

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RHODAMINE 6G FLUORESCENT DYE PROCESSING

1 Scope
Rhodamine 6G is to be used only on non-porous evidence and after Cyanoacrylate Ester (Super Glue) Processing. Rhodamine 6G is a fluorescent dye used to make cyanoacrylate-developed latent prints more visible on various colored surfaces. Lasers or alternate light sources are used in conjunction with this process. Rhodamine 6G processed latent prints will have to be photographed under a light source.

Different carriers for the working solution can be utilized to decrease processing times, preserve inked markings on evidence, or for use on special surfaces.

Rhodamine 6G Working Solution #1 (Petroleum Ether carrier) is used in place of Rhodamine 6G Working Solution #2 (Methanol carrier) when there is a question about or a problem with a waxy or varnished surface.

2 Specification
Rhodamine 6G Stock Solution
Rhodamine 6G Working Solution #1
Rhodamine 6G Working Solution #2

3 Related Documents
Latent Print Worksheet (LAB-LP-01)
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)
RAM Fluorescent Dye Processing (LP-02-10)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Instructions for Coherent TracER (LP-INS-07)

4 Safety
Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.

Rhodamine 6G working solution and stock solutions are extremely flammable and caution should be used. This reagent should be mixed and applied to evidence under a fume hood so it is not inhaled.

5 Equipment, Materials, and Reagents
Rhodamine 6G Stock Solution
Rhodamine 6G
Methanol
Acetone
Acetonitrile
Isopropanol
Petroleum Ether
Scales
Glass beakers
Graduated cylinders
Dark storage bottles
Plastic squirt bottle
Laser or Alternate Light Source
Camera

6 Standards and Controls

A. Reagent Control - Using a squirt bottle, apply Rhodamine 6G working solution #1 or #2 to a cyanoacrylate treated print. Allow the sample to dry. Place the treated sample under a light source. The prints should fluoresce. Date and initial the container and log sheet if the control performs satisfactorily.

B. Surface Control – May be necessary when the evidence has a waxy or varnished surface. When applying the solution to a surface of concern, place a small amount of solution on a place away from developed prints. If the surface begins to cloud over, use Rhodamine 6G Working Solution #1 (Petroleum Ether carrier).

7 Procedure

7.1 Reagent Preparation

A. Rhodamine 6G Stock Solution
   1. Combine 1 g Rhodamine 6G and 1000 mL Methanol.
   2. Stir until the Rhodamine 6G is dissolved.
   3. Place into a brown bottle. Shelf life: Stock solution: Indefinite

B. Rhodamine 6G Working Solution #1
   1. Rhodamine 6G Stock Solution - 12 mL
   2. Acetone - 60 mL
   3. Acetonitrile - 40 mL
   4. Methanol - 60 mL
   5. Isopropanol - 128 mL
   6. Petroleum Ether - 3700 mL
   7. Combine the ingredients in the order listed in a brown bottle. Shelf life: Working solution: six months

C. Rhodamine 6G Working Solution #2
   1. Rhodamine 6G Stock Solution - 8.5 mL
   2. Methanol - 4000 mL
   3. Place into a brown bottle. Shelf life: Working solution: six months
Either working solution can be strengthened or weakened by changing the amount of stock solution added to the formulation. Any alteration to these formulations would have to be fully documented and only used for that particular case.

7.2 Application

1. After Cyanoacrylate Ester (Super Glue) Processing (LP-02-08), apply the appropriate Rhodamine 6G working solution to the evidence by either dipping or using a spray device or squirt bottle.

2. Place the evidence under a fume hood to dry.

3. Examine the evidence under the laser or alternate light source with the appropriate filter for the wavelength. The power setting (beam intensity) may be adjusted as needed.

4. If the dye appears to be in excess, it may be rinsed with an application of distilled water or methanol over the evidence to reduce its thickness. A second application of dye stain may be necessary after the rinse.

5. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

8 Interpretation

A. The prints should fluoresce.

B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

9 Limitations

When prepared as indicated, Rhodamine 6G may overwhelm a weak latent print.

Working solution #2 (Methanol-based carrier) may cause certain inked markings to run and may take considerable time to dry depending on the substrate. It may cause waxy or varnished surfaces to cloud over when applied.

10 Literature and Supporting Documentation

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RAM FLUORESCENT DYE PROCESSING

1 Scope
RAM is to be used only on non-porous evidence and after Cyanoacrylate Ester (Super Glue) Processing. RAM is a fluorescent dye used to make cyanoacrylate developed latent prints more visible on various colored surfaces. Lasers or alternate light sources are used in conjunction with this process. RAM processed latent prints will be photographed under a light source.

2 Specification
Rhodamine 6G Stock Solution
MBD Stock Solution
RAM Working Solution (Spex CrimeScope)
RAM Working Solution (Laser)

3 Related Documents
Latent Print Worksheet (LAB-LP-01)
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)
Rhodamine 6G Fluorescent Dye Processing (LP-02-09)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Instructions for Spex CrimeScope (LP-INS-11)
Instructions for Coherent TracER (LP-INS-07)

4 Safety
A. Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.
B. The RAM reagent is flammable and inhalation may cause upper respiratory tract irritation. Prolonged exposure may result in systemic toxic effects.
C. It should be mixed and applied to evidence under a fume hood.

5 Equipment, Materials, and Reagents
- Rhodamine 6G Stock Solution
- MBD Stock Solution
- Rhodamine 6G
- MBD
- Ardrox P-133D
- Methanol
- Isopropyl alcohol
- Acetonitrile
- Petroleum ether
- Acetone
- Glass beakers
• Graduated cylinders
• Dark storage bottles
• Light source
• Camera

6 Standards and Controls

Using a squirt bottle, apply RAM to a cyanoacrylate-treated print. Allow the sample to dry. Place the treated sample under a light source. The prints should fluoresce. Date and initial the container and log sheet if the control performs satisfactorily.

7 Procedure

7.1 Reagent Preparation

A. Rhodamine 6G Stock Solution
   1. Combine 1 g Rhodamine 6G and 1000 mL Methanol.
   2. Stir on a stirring device until dissolved.

B. MBD Stock Solution
   1. Combine 1 g MBD and 1000 mL Acetone.
   2. Stir on a stirring device until dissolved.

C. RAM Working Solutions
   1. Combine the chemicals and reagents in the order listed for the respective application. If the ingredients are not mixed in the order listed then separation of the chemicals may occur.
      a) For use with a Spex CrimeScope:
         i. 12 mL Rhodamine 6G Stock Solution
         ii. 8 mL Ardrox P-133D
         iii. 28 mL MBD Stock Solution
         iv. 80 mL Methanol
         v. 40 mL Isopropyl Alcohol
         vi. 32 mL Acetonitrile
         vii. 3800 mL Petroleum Ether
      b) For use with a laser:
         i. 6 mL Rhodamine 6G Stock Solution
         ii. 4 mL Ardrox P-133D
         iii. 14 mL MBD Stock Solution
         iv. 40 mL Methanol
         v. 20 mL Isopropyl Alcohol
vi. 16 mL Acetonitrile  

vii. 3800 mL Petroleum Ether  

2. Store working solution in a brown bottle. Shelf life for Working Solutions: 30 days.

7.2 Application  

1. Select the appropriate RAM working solution dependent upon the light source used. After Cyanoacrylate Ester (Super Glue) Processing (LP-02-08), apply RAM working solution to the evidence either by dipping, using a spray device or squirt bottle.

2. The evidence is placed under a fume hood to dry.

3. Examine the evidence under the selected light source and view using an orange filter.  
   a) Place the evidence under the laser at a mid-range setting (approximately 5 to 6 watts of power). The range may be adjusted as needed.  
   b) Place the evidence under the Spex CrimeScope using a range of 505 to 555 nm.  
   c) If the dye appears to be in excess, it may be rinsed with an application of distilled water or methanol over the evidence to reduce its thickness.

4. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

8 Interpretation  

A. The prints should fluoresce.  

B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).  

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

9 Limitations  

A. RAM may be mixed too strong and can overwhelm a weak latent print.  

B. If the ingredients are not mixed in the order listed then separation of the chemicals may occur.

10 Literature and Supporting Documentation  

# Standard Operating Procedures

**Latent Prints**  
**Subject: RAM Fluorescent Dye Processing**

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Advisory Board 06/12/2012 |
| 04        | 11/20/2017     | Major Revision – Section 3  
Minor Revision – Sections 2 and 5 |
| 05        | 05/09/2019     | Revision – Sections 2, 3, and 7 |
GENTIAN VIOLET PROCESSING

1 Scope

Gentian Violet (Crystal Violet) is a dye that produces a purple colored image when reacting to fatty constituents of sebaceous sweat and/or the disturbance on the adhesive side of various types of tape. The non-adhesive side of the tape should be processed first using Cyanoacrylate Ester (Super Glue) Processing (LP-02-08).

2 Related Documents

Latent Print Worksheet (LAB-LP-01)
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)

3 Safety

Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.

No known safety hazards other than it stains skin and clothing.

4 Equipment, Materials, and Reagents

Scales
Beakers
Magnetic stirrer and stirring bar
Storage bottle
Gentian Violet dye powder
Distilled water

5 Standards and Controls

Apply prints to the adhesive side of tape. Apply reagent to the tape and rinse. The prints should be stained and visible to the eye.

6 Procedure

6.1 Reagent Preparation

1. Prepare fresh a 0.1% Gentian Violet dye stain solution (e.g. 1 g Gentian Violet powder: 1000 mL distilled water).
2. Mix until dissolved.
3. Test the solution and record results.

6.2 Application

1. Dip the tape into staining solution for one to two minutes.
2. Rinse tape off under slow running tap water or dip into a beaker of water.
3. Allow the evidence to dry. Discard all solutions after use.
4. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

7 Interpretation

A. The prints should be stained and visible to the eye.

B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

8 Limitations

Do not use on water-soluble tapes or stickers.

Paper backing tapes (masking tapes) tend to stain if left in dye too long.

Some backing of tape can obscure the latent (such as black electrical tape).

Adhesives are commonly stuck to self or other surfaces and may need to be separated prior to processing. Separation can be achieved manually or by freezing, applying heat, or applying chemical separators (for example: Un-du, Freeze-It, or canned air).

9 Literature and Supporting Documentation

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| 02        | 10/16/2009     | Minor Revision – Sections 1, 4, and 6.1  
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| 03        | 01/19/2012     | Major revision – Sections 1, 2, 6.2, and 8  
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Minor revision – Sections 1 and 5  
Advisory Board 06/12/2012 |
| 05        | 11/20/2017     | Major Revision – Section 2  
Minor Revision – Section 4 |
FLUORESCENT GENTIAN VIOLET PROCESSING

1 Scope
Gentian Violet (Crystal Violet) is a dye that produces a purple colored image when reacting to fatty constituents of sebaceous sweat and/or the disturbance on the adhesive side of various types of tape. The non-adhesive side of the tape should be processed first using Cyanoacrylate Ester (Super Glue) Processing (LP-02-08).

2 Related Documents
Latent Print Worksheet (LAB-LP-01)
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)
Rhodamine 6G Fluorescent Dye Processing (LP-02-09)
Gentian Violet Processing (LP-02-11)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Instructions for Coherent TracER (LP-INS-07)

3 Safety
Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.

Gentian Violet and Rhodamine 6G may cause eye and skin irritation. If ingested or inhaled, irritation or an allergic reaction may take place.

Gentian Violet and Rhodamine 6G should be mixed and applied to evidence under a fume hood so it is not inhaled.

4 Equipment, Materials, and Reagents
Scales
Glass beakers
Graduated cylinders
Magnetic stirrer and stirring bar or other stirring device
Glass bowl
Light source
Camera
Crystal Violet
Ethyl Alcohol
Distilled water
Rhodamine 6G
5 Standards and Controls

Apply prints to the adhesive side of tape. Apply reagent to the tape and rinse. Examine under light source using an orange filter. The prints should be stained and visible to the eye.

6 Procedure

6.1 Reagent Preparation

A. Crystal Violet Stock Solution
   1. Prepare fresh. Add 1.5 g Crystal Violet to 100 mL Ethyl alcohol.
   2. Mix until dissolved.

B. FGV Working solution:
   1. Prepare fresh. Combine 10 mL Crystal Violet Stock Solution, 500 mL distilled water, and 0.5 g Rhodamine 6G.
   2. Mix until dissolved.
   3. Test the solution and record results.

6.2 Application

1. Pour enough working solution in a bowl to cover your evidence
2. Apply working solution directly onto the adhesive side of tape (time of exposure may vary), by brushing or dipping.
3. Rinse excess from tape using a gentle flow of tap water. Discard all solutions after use.
4. Allow evidence to dry.
5. Examine the evidence under light source using an orange filter.
6. Mark any latent prints to be preserved by photography.

7 Interpretation

A. The prints should fluoresce.
B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).
C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

8 Limitations

Fluorescent Gentian Violet is used only on adhesive side of tape.

A light source must be used to examine the evidence.

Adhesives are commonly stuck to self or other surfaces and may need to be separated prior to processing. Separation can be achieved manually or by freezing, applying heat, or applying chemical separators (for example: Un-du, Freeze-It, or canned air).

9 Literature and Supporting Documentation


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Minor revision – Sections 4 and 7  
Advisory Board recommendations |
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Advisory Board 06/12/2012 |
| 05        | 11/20/2017     | Major Revision – Section 2  
Minor Revision – Sections 4 and 9 |
STICKY SIDE POWDER PROCESSING

1 Scope
This technique is used to develop latent prints on the adhesive sides of tapes, decals, and other evidence. The non-adhesive side of the tape should be processed first using Cyanoacrylate Ester (Super Glue) Processing (LP-02-08).

2 Related Documents
Latent Print Worksheet (LAB-LP-01)
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)

3 Safety
Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.
No known safety hazards.

4 Equipment, Materials, and Reagents
• Sticky side powder or equivalent
• Photo Flo 200 or equivalent
• Camel hair brush
• Dropper bottle
• Spoon
• Mixing jar
• Adhesive surface processing powder commercially prepared

5 Standards and Controls
Apply prints to the adhesive side of tape. Apply the sticky side powder. Rinse off the excess. Prints should be visible to the eye. Results will be documented on the Latent Print Worksheet (LAB-LP-01).

6 Procedure
6.1 Preparation
1. Commercially prepared processing powder requires no preparation.
2. Place approximately one teaspoon of sticky side powder into mixing jar. An appropriate shade of powder will be used to create contrast with background.
3. Fill a container half full of water and half full of Photo Flo 200. Shake well.
4. Using the dropper, add this solution to the powder in the mixing jar one to two drops at a time until you have a paste with the consistency of thin paint.

6.2 Application
1. Using the camel hair brush, begin brushing the mixture on the adhesive side of the tape.
2. Leave on for 10 to 15 seconds and then rinse off under slow running tap water or agitate it gently in a beaker of water.

3. Allow evidence to dry.

4. Examine the evidence for latent prints. Reapply as described above for improved contrast if necessary.

5. Mark any latent prints to be preserved by photography.

7 Interpretation

A. The prints should be stained and visible to the eye.

B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

8 Limitations

A. Works best on adhesive surfaces. May have limited success on the non-adhesive side of tapes.

B. Sticky side powder processing may interfere with DNA analysis.

C. Adhesives are commonly stuck to self or other surfaces and may need to be separated prior to processing. Separation can be achieved manually or by freezing, applying heat, or applying chemical separators (for example: Un-du, Freeze-It, or canned air).

9 Literature and Supporting Documentation


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| 05        | 11/20/2017     | Major Revision – Section 2 and 6 |
| 06        | 05/09/2019     | Revision – Section 6 |
AMIDO BLACK PROCESSING

1 Scope
Amido Black, also known as Naphthol Blue-Black, is one of the techniques available to develop or enhance latent prints that have been left in blood. It stains the proteins in the blood turning the print a dark blue or black color.

Amido Black may destroy blood for serology testing. Have evidentiary blood samples collected by appropriate personnel prior to processing. It will not develop prints in perspiration, fats and oils, or salts. The background of a porous item will also stain causing weak bloody prints to not be detected.

Amido Black can be mixed using two carriers: methanol/acetic acid and water/citric acid. The Amido Black water-based formula is used in place of the methanol-based formula when there is a question about or a problem with a painted surface.

2 Specification
Amido Black/Water Base
Citric Acid Solution
Amido Black/Methanol Base and Rinse

3 Related Documents
Latent Print Worksheet (LAB-LP-01)
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)

4 Safety
Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.
Mix only in a vent hood.
Chemicals are flammable and skin irritant.
Caution should always be exercised around a bloody crime scene or handling evidence which contains blood.
Excess is disposed of as any flammable liquid.
Since Amido Black is mixed with methanol which is highly flammable, extreme caution should be taken when at a crime scene as to make sure all pilot lights on gas heaters and stoves are not lit. Use in a well-ventilated area.

5 Equipment, Materials, and Reagents
Scales
Beakers
Graduated cylinder
Magnetic stirrer and stirring bar
Plastic squirt bottles
Dark brown storage bottles
Kodak Photo Flo 600 (Photo Flo 200 or equivalent may be substituted)
Naphthol blue-black powder
Citric acid
Glacial acetic acid
Methanol
Citric Acid Rinse Solution
Amido Black/Water/Citric Acid Base Solution
Amido Black/Methanol Base Solution
Amido Black/Methanol Rinse Solution

6 Standards and Controls

A. Reagent Control - Apply to a sample of dried blood prints. Rinse and let dry. Prints should turn dark blue or almost black in color. Date and initial the container and log if the control performs satisfactorily and indicate the results.

B. Surface Control - When applying the solution to a surface of concern, test a similar substrate prior to application on evidentiary items. Rub the surface with your gloved fingertip. If the paint rubs off, use the Amido Black/Water/Citric Acid Base Solution.

7 Procedures

7.1 Reagent Preparation

A. Amido Black/Methanol Base Solution
1. Combine 2 g Naphthol blue-black, 100 mL Glacial acetic acid, and 900 mL Methanol.
2. Stir until completely dissolved.
3. Store reagent in clear or dark bottles. Shelf life is indefinite.

B. Amido Black/Methanol Rinse Solution
1. Combine 100 mL Glacial acetic acid and 900 mL Methanol.
2. Store reagent in clear or dark bottles. Shelf life is indefinite.

C. Citric Acid Stock Solution/Rinse Solution
1. Add 19 g Citric Acid to 1000 mL distilled water.
2. Stir until completely dissolved.
3. Store reagent in clear or dark bottles. Shelf life is indefinite.

D. Amido Black/Water/Citric Acid Base Solution
1. Add 2 g Naphthol blue-black to 1000 mL Citric Acid stock solution.
2. Stir until completely dissolved.
3. Add 2 mL Photo Flo and stir lightly.
4. Store reagent in clear or dark bottles. Shelf life is indefinite.

7.2 Application

1. Select the appropriate Amido Black base solution dependent upon the surface. Use the Amido Black/Water/Citric Acid Base Solution when surface conditions are of concern.

2. Apply the selected base solution by dipping, spraying, or using a squirt bottle to thoroughly dried prints in blood. Apply until the entire print has turned from a reddish-brown color to a blue-black color. Background staining can occur on porous surfaces.

3. If necessary the base solution can be re-applied before the final rinse to achieve sufficient clarity.

4. Rinse off excess base solution with the appropriate rinse solution (use additional rinses as necessary).
   a) For Amido Black/Methanol Base use Amido Black/Methanol Rinse Solution.
   b) For Amido Black/Water/Citric Acid Base use Citric Acid Rinse Solution.

5. Allow evidence to dry.

6. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

   Note: Developed latent prints on some dark-colored surfaces may be viewed with a light source for increased contrast.

8 Interpretation

A. In the presence of blood, a color change from a reddish-brown color to a blue-black color will occur.

B. Developed latent prints are evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

9 Limitations

The Amido Black water-based formula is used in place of the methanol-based formula when there is a question or a problem with a surface condition.

The Amido Black water-based formula is not as fast in staining the bloody prints as the methanol-based and does not stain the prints as dark as the methanol-based formula.

Cyanoacrylate Ester (Super Glue) Processing may interfere with this process.

It will not develop prints in perspiration, fats and oils, or salts.

Background staining can occur on porous surfaces.

10 Literature and Supporting Documentation

Lee HC, and Gaensslen RE. Advances In Fingerprint Technology, 2nd Edition
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LIFTING TECHNIQUES

1 Scope
Friction ridge detail that is developed by powder processing should, if possible, be preserved by lifting techniques. There are three basic lifting devices: lifting tape, hinge lifters, and rubber lifters. Friction ridge detail will be photographed prior to being lifted whenever possible.

Polyethylene tape is recommended for use on curved or uneven surfaces.

2 Related Documents
Latent Print Worksheet (LAB-LP-01)
Powder Processing (LP-02-02)
Magnetic Powder Processing (LP-02-03)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)

3 Safety
Be careful of serrated edges of tape dispensers.

4 Equipment, Materials, and Reagents
Tape rolls - 1 ½”, 2”, and 4” (clear or frosted)
Lift cards – black and white – various sizes
Hinge Lifter sizes – 1 ½” x 1 ½”, 2” x 4”, and 4” x 4” (black, white, or clear).
Rubber Lifter sizes – 2” x 2” to 6” x 15” (black or white).
Pen or marker

5 Standards and Controls
Contrast powder with card or lifter (white, gray, or fluorescent powder use a black card; black powder use a white card).

6 Procedure
6.1 Tape Lift
1. Determine what size tape to use by viewing the area and size of lift and prepare the tape.
   a) Single fingers or small areas of palms or feet may be lifted with 1 ½” tape.
   b) Larger areas or multiple prints may require wider tapes or overlapping two or more strips of tape with the overlap being at least 1/8” in width.
   c) Tab the end of the tape roll by pulling out enough tape to fold it back on itself so as to not leave your own prints on the adhesive side.
   d) Pull tape off the roll in one continuous motion until the proper length is obtained. Stopping and starting may cause marks on the tape that will distort the print.
2. Before a lift is made, attempt to remove excess powder by lightly tapping the evidence, gently blowing over the friction ridge detail with a bulb syringe, or lightly brushing along the ridge flow using a camel hair brush.

3. To obtain the lift:
   a) Place the lift card of contrasting color on a clean flat surface to be ready for the tape.
   b) Hold one end of the tape in each hand. With one finger, secure the tape down on the surface about ¼" from the print.
   c) Press finger over tape across the intended lift area. Ensure tape has completely and evenly covered intended surface eliminating as many air bubbles as possible. Rub out air bubbles with finger or very clean pencil eraser.
   d) Lift the tape (and the latent print) off the object and place the tape on the blank side of lift card in like manner.

4. On the front of the lift card, make note of the position of the latent print in regards to the object from which the latent print was lifted.

5. Tear off tabs and mark out any prints of your own with an “X” and initial.

6. Document all lift cards with the following information:
   a) Date of the lift.
   b) Forensic scientist’s initials.
   c) Brief description of location, including item number.
   d) Orientation of the lift as applicable.
   e) Laboratory case number.
   f) A diagram with an “X” showing location of the lift.
   g) If multiple lifts are made of the same print – label 1st, 2nd, etc.

6.2 Hinge Lifter

1. Determine what size lifter to use by viewing the area to be lifted.

2. Before a lift is made, attempt to remove excess powder by lightly tapping the evidence, gently blowing over the friction ridge detail with a bulb syringe, or lightly brushing along the ridge flow using a camel hair brush.

3. To obtain the lift:
   a) Peel off the separator from the adhesive side.
   b) Place the adhesive side over the print.
   c) Rub the lifter with the ball of a finger (or pencil eraser) to ensure that the powder is picked up by the adhesive and to remove any air pockets.
   d) Remove the lifter in a steady, even motion.
   e) Place the lifter on a flat surface with the adhesive side up. Form a curl at the hinge and roll the cover over the adhesive side making sure not to leave air bubbles.
4. On the black or white covers, document the date, case number, initials, and item from which the print was lifted.

5. On the clear cover, make note of the case number and initials.

6. The marked stars are on the side that is used for comparisons.

### 6.3 Rubber Lifter

1. Determine what size lifter to use by viewing the area and size of lift. (Cut lifter to size if needed).

2. Before a lift is made, attempt to remove excess powder by lightly tapping the evidence, gently blowing over the friction ridge detail with a bulb syringe, or lightly brushing along the ridge flow using a camel hair brush.

3. To obtain the lift:
   a) Peel off the separator from the adhesive side and set aside.
   b) Place the adhesive side gently over the print.
   c) Rub the lifter with the ball of a finger (or pencil eraser) to ensure that the powder is picked up by the adhesive and to remove any air pockets. *Note: if you rub too hard you may blur the print by causing the lifter to slip.
   d) Remove the lifter in a steady, even motion.
   e) Replace the plastic cover by starting at one edge and rolling it across to the other making sure not to leave air bubbles.

4. On the back, document the date, case number, initials, item from which the print was lifted, brief sketch, and any other information deemed necessary.

### 7 Interpretation

All lifts made by laboratory personnel shall be retained. Proceed to Friction Ridge Comparison (LP-04-01).

### 8 Limitations

Tape tends to curl back on itself.

Limited to the size of lift made.

Curved surfaces cause wrinkles in the lifting medium.

Latent prints preserved with rubber lifters are in reverse position.

Some surfaces are not conducive to lifts being successful. If this is the case, photographs of ridge detail shall be taken.

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Advisory Board 09/16/2015 |
| 06        | 11/20/2017     | Major Revision – Sections 1, 2, 6, 7 and 9 |
DIGITAL IMAGING OF FRICTION RIDGE IMPRESSIONS

1 Scope
To provide a Digital Imaging workflow for examiners for the use of equipment and software for image capture, image processing, preservation, and storage of evidentiary digital images

2 Related Documents
Lifting Techniques (LP-02-15)
Friction Ridge Comparison (LP-04-01)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)

3 Safety
A. Use standard precautions when handling evidentiary material.
B. Appropriate Personal Protective Equipment (PPE) should be worn depending on nature of evidence.

4 Equipment, Materials, and Reagents
• Professional Digital Single Lens Reflex (SLR) Camera (meet or exceed 12.3 MP 4288 x 2848 pixels specifications, such as Nikon D-90)
• Nikkor AF Micro 60 MM Lens (Macro), or equivalent
• Remote Shutter Release
• Camera Media (Memory) Cards
• Latent Print Envelope
• Copy Stand
• 150 watt Reflector Flood Light Bulbs (or other appropriate lighting)
• Light Sources, LASER, or other Alternate Light Source
• Laboratory Jacks or equivalent
• Professional Digital Scanner (meet or exceed 6400x9600 ppi specifications, such as Epson Perfection Professional Scanner V-750 with Epson Scan Scanning Software) Digital Workstation (CPU, Monitor, Server, Backup) (i.e. Foray Workstation)
• ADAMS Digital Workplace Software (Foray Image Calibrator, Grayscale FFT, and Chromatic FFT.)
• Adobe Photoshop CS Software (Version 10 or higher)
• Adobe Bridge Software
• Printer (Photo inkjet, DNP DS40, or Mini-Lab printer which meets or exceeds minimum specifications or resolution)
• Printer Ink and Media appropriate for printer type
• Scaling Devices
5 Standards and Practices

5.1 Policy

A. Friction ridge impressions used for comparative analysis must be captured in the highest resolution lossless format available (i.e. RAW or TIFF) at a minimum of 1000 pixels per inch (ppi) when the image is sized 1:1, or by using existing film photographic techniques. Grayscale digital imaging should be at minimum of 8 bits. Color digital imaging should be at minimum of 24 bits. This applies to images captured by examiners.

B. The original images and working images stored on a secure server are considered evidence.

C. It is at the discretion of the examiner to determine:
   1. Type of preservation method that provides the best quality image that accurately represents the actual evidence.
   2. Which multiple exposures (bracketed images) are retained as evidence. Images that are unable to be re-captured may not be deleted.
   3. If resolution attained with a submitted digital image, while considering the minimum capture resolution, is of sufficient quality to perform any comparative analysis.
   4. Selection of image processing steps.

5.2 Professional Digital SLR Camera

1. Place evidence on copy stand directly under and as close to parallel to the camera lens as the location of the latent print evidence allows. The image of the subject matter should fill the view finder.

2. Label latent print photo tag/scale with case number, examiner’s/photographer’s initials, date, and description or LIMS number and place on same plane near friction ridge detail to be photographed. Illuminate subject matter using appropriate lighting techniques. Use recommended camera settings to obtain sufficient contrast of latent print and accurate reproduction of actual subject matter. For example, set camera to aperture priority mode, adjust f-stop to control the depth of field (the camera will automatically select the correct shutter speed to ensure the proper exposure).

3. Recommended Camera Settings:
   a) Format: RAW
   b) Mode: Color
   c) Focus: Manual
   d) Image Size: Use the largest image size available (This setting will maximize the limited area that can be captured to maintain minimum resolution).
   e) F-Stop: Adjustable depending on desired depth of field. For prints on a curved surface, consider an increased depth of field, for prints on flat surfaces, consider a decreased depth of field. (f-22 will give a greater depth of field than f-8, i.e. f-22 allows more area to appear in focus than f-8).
f) **Shutter Speed**: Adjustable depending on desired shot (Using aperture priority, the camera will select the correct shutter speed).

g) **ISO Setting**: Use lowest ISO setting available on camera.

h) **Exposure**: Can be adjusted to provide best image.

i) **Lighting**: Direct Lighting with bulbs set at a 45° angle to base plate. Other lighting techniques can be used to illuminate the subject matter.

4. Capture latent print image with Digital Camera in a lossless format with no compression such as RAW or TIFF. Images are immediately recorded onto a camera memory card, or designated location.

5. Repeat steps 1 through 3 for additional photographs.

6. Remove camera memory card, if applicable.

7. Log onto Foray Workstation with user name and password.

8. Insert camera memory card into a card reader at a Foray Workstation.

9. Open Adobe Bridge and view captured digital images prior to acquiring into Digital Workplace. Bracketed shots are often taken in order to obtain best exposure (While it is permissible to retain bracketed shots, only the best exposures and best represented images should be considered for retention as evidence).

10. Renaming captured images using software on the computer is acceptable, but not required. When performed, captured images will be re-named by Latent Prints Section standards which will include the laboratory case number, photographer’s initials, and sequential number for the image. An example of the image file name is:

    **AUS-1301-12345.XX.01.nef**

    - Laboratory case #
    - Followed by dot
    - Operator initials
    - 2 or 3 letters
    - Followed by dot
    - Sequence
    - 2 or 3 digits
    - Followed by dot
    - File format
      - Camera Raw (.nef) or TIFF (.tif)

11. Close Adobe Bridge.

12. Open Digital Workplace and Acquire selected images from folder (memory card) into Digital Workplace.

13. Complete Acquisition Info for Acquiring Assets into Digital Workplace. You will need information from the submission form to complete these entries.

    **Asset Folder Type**: Select the respective discipline from the drop-down menu

    **Asset Folder Number**: Enter the laboratory case number

    **Contributing Agency ID**: Default entry

    **Acquired By**: Default entry
Captured By: Default entry; entry should be updated to reflect captured by other laboratory personnel if applicable

Crime: Select from drop down menu according to the LOG defined offense codes

Date of Crime: Select the offense date

Captured On: Select the date of photograph/scan

Category: Select from the drop-down menu, e.g. Latent Prints

Location: No entry is required

Description: No entry is required

14. The original images will be stored on the server/workstation.

15. Verify that images are on server. Once images from camera memory card have been successfully acquired, clear contents of memory card.

16. Document on the Latent Print Worksheet (LAB-LP-01) the number of photographs taken and retained for a given item.

17. Proceed to Image Processing.

5.3 Professional Digital Scanner

1. Log onto Foray Workstation with user name and password.

2. Open Adobe Photoshop.

3. Place evidence on flatbed scanner. For photographic negatives, use film holder attachment.

4. Label latent print photo tag/scale with case number, examiner’s/operator’s initials, date, and description or item number and place near friction ridge detail to be scanned.

5. Capture image 1:1 with a Professional Digital Scanner in a lossless format (TIFF format) with no compression.

6. Recommended Scanner Settings for Epson Perfection V-700/750:

   a) Flat-Work (i.e. Evidence, Lift Cards, Exemplars)

      i. Mode: Professional

      ii. Document Type: Reflective

      iii. Image Type: 24 Bit Color

      iv. Scan Quality: Best possible

      v. Resolution: 1200 ppi, 2400 ppi, or 4800 ppi

   b) Conversion of Photographic Negatives (Option 1)

      i. Mode: Professional

      ii. Document Type: Film with film holder

      iii. Film Type: B&W Negative film or Positive

      iv. Image Type: 24 Bit Color
Scan Quality: Best possible

Resolution: 1200 ppi, 2400 ppi, or 4800 ppi

c) Conversion of Photographic Negatives (Option 2)

i. Mode: Professional

ii. Document Type: Film (film with holder)

iii. Film Type: Color Negative film

iv. Image Type: 8-Bit Grayscale

v. Scan Quality (as applicable): Best possible

vi. Resolution: 1200 ppi, 2400 ppi, or 4800 ppi

7. Save captured image in TIFF (.tif) format into the Temp Scan Folder on workstation. Renaming scanned images using software on the computer is acceptable, but not required. When performed, scanned images will be named by Latent Prints Section standards which will include the laboratory case number, operator’s initials, and scan followed by sequential numbering for the acquired images. An example of the image file name is:

AUS-1301-12345.XXX.scan01.tif

8. Repeat Steps 3 through 6 for multiple scans.

9. Close Adobe Photoshop.

10. Open Digital Workplace and Acquire selected images from Temp Scan Folder into Digital Workplace.

11. Complete Acquisition Info for Acquiring Assets into Digital Workplace. You will need information from the submission form to complete these entries.

12. The original images will be stored on the server/workstation.

13. Verify that images are on server. Once images from Temp Scan folder have been successfully acquired, send contents of folder to Recycle Bin.

14. Document on the Latent Print Worksheet (LAB-LP-01) the number of scans made and retained for a given item.

15. Proceed to Image Processing.

5.4 Image Processing

A. It is up to the examiner to determine the extent of image processing necessary to properly evaluate the latent print.

1. Log onto Foray Workstation with user name and password.

B. Image Processing Steps Using Digital Workplace

1. Open Digital Workplace and search for asset/asset folder.
2. Select asset for image processing.
3. Rotate image, flip horizontal, flip vertical, adjust white balance, if desired, and save changes.
4. If asset is a scanned image, proceed to C: Image Processing Steps Using Adobe Photoshop, step 3. If asset is a photographed image, proceed to step 5.
5. Calibrate the image using the Calibrator icon to determine capture resolution and save.

C. Image Processing Steps Using Adobe Photoshop.

1. Select original image for image processing.
2. Calibrate if not previously calibrated in Foray (photographs=required) (scans=optional).
3. Process the working image using approved image processing techniques which include: Color Processing, Grayscale Conversion, Inversion, Tonal and Contrast Adjustment, Image Sharpening, and Noise Reduction. Color Channel Selection and Subtraction and Fast Fourier Transform filters (FFT) are also acceptable image processing techniques. Tools that may potentially add or delete content from an image are prohibited for use when performing image processing steps. These include but are not limited to: Rubber Stamp, Airbrush, Paintbrush, Paint Bucket, Eraser, and Blur.
   a) History tracking must be enabled.
   b) History tracking is managed by Digital Workplace.
   c) History can be retrieved and printed with Digital Workplace.
4. Close image in Adobe Photoshop and save working image in a TIFF format (.tif). In Digital Workplace, this process will create a new file with original file name apparent with a new extension …FA001.tif and a unique Asset ID. This new image is considered the processed image.
5. The processed image will be stored on the server/workstation.
6. Proceed to Printing Reports.

D. Using multiple exposures to reduce backgrounds:

1. Capture latent print image with digital camera with appropriate LS lighting technique. This is referred to as the LS image.
   a) DO NOT move the evidence or camera after the photograph
   b) If evidence is moved, start over and repeat procedure
2. Turn off the LS and turn on the ambient lighting (overhead lighting)
   a) Leave the orange filter on the camera
   b) Remember to mitigate hot spots caused by overhead lighting
3. Capture latent print image with digital camera with ambient lighting. This is referred to as the non-LS/ambient light image.
   a) Make adjustments for proper exposure
      i. Only use the shutter to adjust exposure
      ii. Do not use the aperture to adjust exposure
4. Acquire the LS image(s) and non LS image(s) into Digital Workplace
5. Open the non-LS/ambient light image in RAW [not in TIFF]
6. Adjust Shadows/Highlights as appropriate in Camera Raw view
7. Invert and save image in Digital Workplace
8. Open non-LS/ambient light image you just saved
9. Click “Return” and go back to Digital Workplace
10. Open LS image in RAW [not in TIFF]
11. Adjust Shadows/Highlights as appropriate in Camera Raw view
12. Separate the two windows in Adobe Photoshop
13. Drag non-LS/ambient light image on to the LS image [Note: do not drag from the title bar; drag from the middle of the image. Make sure the images overlay before proceeding.]
14. Close the non-LS/ambient light image
15. Adjust non-LS/ambient light layer opacity [Note: This takes some practice but tends to fall in the range of 30% to 85% to get the best result. Adjust until the ridge detail becomes clear but the background begins to fade. The image will likely have a blue/green or teal appearance.]
16. Click on Image, Mode, and then select Grayscale. When prompted, select Flatten image [Discard color layer].
17. Invert image. This step will show the improvement of the background removal. If necessary go to the History and repeat from Step 15 and adjust the opacity to get optimum results.
18. Continue processing as normal and save final image
19. Calibrate the final processed image in Digital Workplace (not required to calibrate the non-LS/ambient light image).

It is important to track all changes in the history of the images in Digital Workplace (both images must be acquired). The images must be opened as RAW files (not TIFF) and the opacity adjustment can be repeated if necessary. Both original RAW files of the LS and non-LS/ambient light images are saved in Digital Workplace as well as the complete history for both of the processed images. This can be repeated by another examiner at a later date.
5.5 Printing

A. Composite

1. A composite will be prepared for scans and photographs of latent prints used for comparative analysis. The composite will include laboratory case number, initials, the file name of image represented or Asset ID (if applicable), date composite printed, and scale (size ratio). Enlargements as well as 1:1 representations may be included on the composites. The images may be re-sized and cropped and may not fully represent all areas of captured image. Sufficient documentation should be present on printed composites in order to track the origin of latent print.

2. Print composites and proceed to Friction Ridge Comparison (LP-04-01).

3. Retain composites.

B. Contact Sheet

1. A contact sheet will be prepared for all original and working images contained on the server. These images are represented by small thumbnail images labeled with the associated file name and will not be used for comparison purposes.

2. Print contact sheet(s).

3. Retain contact sheet(s) in Case Folder.

C. Reports may be printed from within Digital Workplace.

1. Contact Sheet Report.

2. 1:1 Report, printed when enlargement is not necessary

3. Asset Details Report, printed for evaluation of metadata, history, and audit trail of image


6 Interpretation

A. The digital image is examined for:

1. Clarity of image (focus).

2. Capture area (inclusion of scale).

3. Required minimum resolution (Justification for any deviation from the recommended minimum resolution shall be documented in the case folder).

B. If the digital image does not meet the above criteria, the friction ridge detail shall be re-photographed or re-scanned with adjustments made.

C. If the digital image meets the above criteria, the examiner will proceed to Friction Ridge Comparison (LP-04-01).

7 Limitations

A. The digital capture, processing, and storage of images is limited to the equipment, materials and software available within the department.

B. The photo tag/scale may be trimmed to include just the scale, or an alternative scale may be used in some instances. In those instances, the case number,
examiner’s/operator’s initials, date taken, and description or item number must be included on any composite printed.

C. Photographing large or bulky evidence may require photographer to remove camera from copy stand and use a tripod to preserve latent print evidence.

D. In order to maintain a resolution equal to or above 1000 pixels per inch, the area of capture is limited when utilizing a digital camera. This minimum area of capture can be calculated based on the Image Size in pixels from the camera specifications. Because of the limited capture area of a digital image, complete palm prints, foot prints, or clusters of fingerprints may need to be captured with a series of images for proper evidentiary preservation. In this case, an overall of the complete friction ridge detail should be captured, even though the resolution is less than 1000 pixels per inch. This image may or may not be suitable for comparative analysis.

E. Friction ridge detail should be reviewed after capture on the camera by the examiner to determine accurate representation and quality under magnification. Friction ridge detail preserved in these instances may not be available at a later date for recapture.

F. Although every effort will be made to meet or exceed 1000 pixels per inch, the examiner may accept an image of lower resolution and continue with case examination as long as the latent print is accurately represented and of sufficient quality for analysis.

G. Image processing for latent print evidence will be limited to the defined basic and advanced techniques set forth by SWGIT.

1. Basic Techniques: Brightness and contrast adjustment, including dodging and burning, Resizing (file interpolation), Cropping, Positive to negative inversion, Image rotation/inversion, Conversion to grayscale, White balance, Color balancing and/or color correction, Basic image sharpening and blurring (pixel averaging).

2. Advanced Techniques: Frame averaging, Fourier Analysis (including the use of FFT), Deblur, Noise reduction, Image restoration, Color channel selection and subtraction, Perspective control and/or geometric correction, Advanced sharpening tools, such as unsharp mask.

H. Assets cannot be deleted. The delete function is disabled on Digital Workplace. Only those images that are determined as evidence images should be acquired into the system.

I. Digital Workplace will only authenticate those images that are acquired into the system.

J. If processing in Default Application, Foray ADAMS will not track processing history. Users must select the icon for Adobe Photoshop. This will ensure that any processing history is recorded and saved into Foray ADAMS. Assets processed using Adobe Photoshop within the Foray ADAMS must be saved in order for a new asset to be created. Furthermore, when image processing in Digital Workplace: Do not click “OK” until after Photoshop processing of the image has been completed. Clicking OK before the image process is completed will prevent the processed image from being returned to Digital Workplace. When processing images outside of Digital Workplace using Adobe Photoshop, user must ensure that the History is enabled.
K. If Digital Workplace is offline, the images can still be processed using the Foray Workstation and Adobe Photoshop outside of Digital Workplace. The file naming scheme must be used in these instances. Perform image processing on a working copy of the image utilizing Adobe Photoshop software. Use the “Save As” function on the computer to ensure that the original file remains secure. Do not overwrite the original image. See an example of the naming convention for a working image below. Once Workplace is back online, the original and working images can be acquired into Digital Workplace.

AUS-1301-12345.XXX.01.en01.tif

L. The lowest common factor in terms of resolution is the printer output. The capture resolution can be readily controlled. It may be necessary to create and print enlargements for a poor quality latent print in order to perform a complete examination due to the limited output resolution of a printer. The latent print may need to be evaluated and compared directly from the computer monitor.

M. Enlargements prepared from any digital evidence should be prepared and printed using the workstation in order to ensure best quality.

N. The brush tool may be used when preparing composites for purposes of documenting the comparison. Set the opacity of the brush tool to 75% or less and select a color.

8 Literature and Supporting Documentation


Texas DPS Crime Laboratory, Austin Latent Print Section. Forensic Digital Image Validation. 2007.

Texas DPS Crime Laboratory, Austin Latent Print Section. Foray Validation/Performance Check. 2009.
## Revision History

<table>
<thead>
<tr>
<th>Version #</th>
<th>Effective Date</th>
<th>Brief Description of Change(s)</th>
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<tbody>
<tr>
<td>00</td>
<td>03/01/2006</td>
<td>Original Issue; Modified from revision 02/02/2001</td>
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</tbody>
</table>
| 01        | 07/16/2007     | Deletion Section 1: Where available, the photography section may assist the examiner in capturing the images and processing the film.  
Modification Section 6.2: 1. Typically, the Photography Section will photograph the developed latent. Photographs will be documented on a log. Label latent print photo tag/scale with case number, analyst's initials, photographer's initials, date of photograph and description or item number on the evidence and place near friction ridge detail to be photographed. 2. Document in the case notes that photographs were taken to include the initials of the photographer and the date. |
| 02        | 03/23/2009     | Major Revision – All sections |
| 03        | 01/19/2012     | Major Revision – All sections  
Advisory Board recommendations |
| 04        | 06/26/2012     | Major Revision – Sections 5.2, 5.3, and 7  
Minor Revision – Sections 1, 5.1, 5.4, 6, and 8  
Advisory Board 06/12/2012 |
| 05        | 12/19/2012     | Minor Revision – Analyst to Forensic Scientist |
| 06        | 11/18/2013     | Minor Revision – Section 4 |
| 07        | 01/01/2015     | Minor Revision – Section 4 and 8  
Advisory Board recommendations |
| 08        | 03/18/2016     | Major Revision – Sections 1, 2, 3, 4, 5.2, and 5.3  
Advisory Board 09/16/2015 |
| 09        | 11/20/2017     | Major Revision – Sections 2, 4 and 5  
Minor Revision – Sections 1, 5, 6, 7, and 8 |
| 10        | 05/09/2019     | Revision – Section 2, 5, 7, and 8 |
IND (1,2-INDANEDIONE) PROCESSING

1 Scope
IND is a fluorescent amino acid reagent applied for developing latent prints on porous surfaces such as paper and cardboard. It is sensitive to old prints as well as fresh prints and can be used to develop prints in blood on porous surfaces. In 1998, Hauze, et al, reported in the Journal of Forensic Sciences the application of IND on paper to visualize latent prints. There are several different formulas and development parameters regarding formula concentration, solvent choice, and accelerated development methods, that have been experimented with since that time. The IND formula used by Almog, et al, has been noted to obtain fingerprint fluorescence at varied concentrations ranging from 0.0004% to 0.25% with only slight background fluorescence noticeable at the highest concentration.

Evidence that may have potential DNA evidentiary value should not be processed for latent prints with IND prior to DNA collection.

Carriers that IND is mixed with can interfere with other types of analyses such as document examinations involving inks and questioned writing. Questioned document and handwriting analysis should be performed prior to IND processing.

There is minimal or no discoloration or background staining evident on the IND processed samples that consistently appears when processing with DFO (1,8-Diazafluoren-9-one). IND may be used in place of DFO.

It can be used in conjunction with other processes if used in the following order:

1. Iodine fumes
2. IND
3. DFO
4. Ninhydrin

2 Related Documents
Iodine Processing (LP-02-04)
Ninhydrin Processing (LP-02-05)
DFO (1,8-Diazafluoren-9-one) Processing (LP-02-06)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Instructions for Air Science Fingerprint Development Chamber (LP-INS-12)
Instructions for Spex CrimeScope (LP-INS-11)
Instructions for Caron Humidity Chamber (LP-INS-06)
Instructions for Coherent TracER (LP-INS-07)
Latent Print Worksheet (LAB-LP-01)

3 Safety
A. Wear proper protective equipment. This may include but is not limited to gloves, lab coat, and eye protection.
B. Chemicals used in preparation and process are flammable and irritant.
C. Avoid contact with skin and eyes.
D. Wear the appropriate protective eye wear when viewing evidence under alternate light sources.

4 Equipment, Materials, and Reagents

- Glassware: beakers, graduated cylinder
- Magnetic stirrer
- Balance
- Fume hood
- Humidity Chamber
- Alternate light source
- 1,2-Indanedione
- Glacial Acetic Acid, ACS (99-100%)
- Ethyl Acetate, ACS
- Petroleum Ether, ACS

5 Standards and Controls

A. Place a test print on paper and allow the perspiration to dry. Apply 0.1% IND solution to the paper. To accelerate the development, place the card in a humidity chamber (steam iron may be used). Developed prints are observed through an appropriate viewing filter using an alternate light source. The solution will produce positive results if prints are developed. Date and initial the container and log sheet if the control performs satisfactorily and indicate the results.

B. After 30 days, a quality control test must be performed each day when used and the result documented in the case file.

6 Procedures

6.1 Preparation of 0.1% IND Solution (weight/volume)

<table>
<thead>
<tr>
<th></th>
<th>1,2-Indanedione</th>
<th>Glacial Acetic Acid, ACS (99.5+)</th>
<th>Ethyl Acetate, ACS</th>
<th>Petroleum Ether, ACS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 g</td>
<td></td>
<td>10 mL</td>
<td>90 mL</td>
<td>900 mL</td>
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</table>

1. Dissolve 1 g 1,2-Indanedione crystals in 10 mL Glacial Acetic Acid and 90 mL Ethyl Acetate. A stirring device should be used for mixing.
2. Add 900 mL Petroleum Ether.
3. Store reagent in a dark storage bottle.
4. Shelf life is three months.

6.2 Application

1. Apply the 0.1% IND solution to evidence by spraying, dipping or brushing.
2. Allow evidence to dry for approximately three minutes.
3. After the 0.1% IND solution has dried, place the processed evidence in a humidity chamber to accelerate the development process.

4. 10 minutes at 100°C and 60% relative humidity

5. The best results obtained for the thermal paper samples were achieved by not accelerating the development and allowing them to develop naturally in the laboratory environment from 4 to 12 hours.

6. Developed prints are observed through an appropriate viewing filter using an alternate light source.

7. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

8. The results can also be seen on some samples with white light and develop as a light pale pink color.

7 Interpretation

A. Increasing or decreasing the intensity of the fluorescence could be carried out by adjusting the amount of 1,2-Indanedione in the formula.

B. The prints may appear a pale pink color; however, when viewed under various light sources the prints will fluoresce brightly and are much more visible, especially on a dark colored surface that might hide prints that have been developed with Ninhydrin alone.

C. Developed latent prints will be evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

D. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

8 Limitations

A. If the IND solution separates, test on non-evidentiary items prior to use on evidence and document in case file the results of the quality control test.

B. Thermal paper will discolor from various shades of grey to black that may render any printing on the paper unreadable.

C. Thermal paper should be allowed to develop overnight and not be heated in the Fingerprint Development Chamber.

D. Evidence determined to be semi-glossy should be allowed additional development time prior to being examined or placed in the humidity chamber. The additional time may allow the IND to react with amino acids absorbed under the semi-glossy layer.

9 Literature and Supporting Documentation


Sirchie Finger Print Laboratories, Inc. 1,2-Indanedione, Catalog No. LV508. 2003.

## Revision History

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<td>01</td>
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<td>Minor Revision – Section 8</td>
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<td>06</td>
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<td>Minor Revision – Section 7</td>
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<tr>
<td>08</td>
<td>05/09/2019</td>
<td>Removed – Section 2 (Specification)</td>
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<td></td>
<td></td>
<td>Revision – Sections 1 and 3 (now 2)</td>
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OIL RED O (ORO) PROCESSING

1 Scope
Oil Red O is a lipid stain used for developing latent prints on porous surfaces. Beaudoin (2004) reported in the Journal of Forensic Identification on the application of Oil Red O on paper that had been wet. Rawii and Beaudoin (2006) further examined the use of Oil Red O versus Physical Developer. Oil Red O stains the lipids in fingerprint residue a red color that is visualized.

According to Beaudoin (2010), Oil Red O has been used to develop a 21 year old suitable latent print in casework.

According to Guigui and Beaudoin (2007), Oil Red O can be used in sequence with other latent print chemicals; however, a specific carrier (HFE 7100 NOVEC) must be used if IND, DFO, or Ninhydrin is used before Oil Red O. Petroleum Ether and other carriers may dissolve the lipids that the Oil Red O stains.

A buffer such as water or sodium phosphate dibasic heptahydrate is used to rinse the evidence after Oil Red O processing.

Oil Red O is effective in developing latent prints on thermal receipts and currency.

Evidence that may have potential DNA evidentiary value should not be processed for latent prints with ORO prior to DNA collection.

Carriers that ORO is mixed with can interfere with other types of analyses such as document examinations involving inks and questioned writing. Questioned document and handwriting analysis should be performed prior to ORO processing.

2 Related Documents
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Instructions for Benchtop Rocker (LP-INS-10)
Latent Print Worksheet (LAB-LP-01)

3 Safety
A. Chemicals used in preparation are basic and irritant.
B. Avoid contact with skin and eyes.
C. Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.

4 Equipment, Materials, and Reagents
• Glassware: beakers, graduated cylinder
• Balance
• Fume Hood
• Benchtop Rocker
• Magnetic stirrer
• Filter Paper
• Two (2) Glass Trays
• Oil Red O
• Methanol
5 Standards and Controls

Place a test print on a porous surface. Apply Oil Red O to the porous surface. Developed prints will be visualized in normal lighting. The solution produces positive results if prints are developed (usually within five minutes of processing). Date and initial the container and log sheet if the control performs satisfactorily and indicate the results.

6 Procedures

6.1 Reagent Preparation

A. Stain Solution

1. 1.54 g Oil Red O
2. 770 mL Methanol
3. 9.2 g Sodium Hydroxide

1. Dissolve 1.54 g Oil Red O in 770 mL Methanol. A stirring device can be used.
2. Dissolve 9.2 g Sodium Hydroxide in 230 mL water by stirring. Add to the above solution.
3. Filter the solution into a dark storage bottle. Discard any Oil Red O that does not dissolve.
4. Prepare fresh.

B. Water Buffer

1. Tap or deionized water

6.2 Application

1. Immerse the item(s) in a glass tray containing enough Oil Red O to cover the item(s).
2. Place the glass tray on the benchtop rocker and use appropriate setting to rock the solution back and forth. Leave the item submerged in the solution for 30-90 minutes or until all latent prints are developed.
3. Remove the item(s) and place in the glass tray or appropriate glassware containing the water buffer.
4. Remove the item(s) and let dry.
5. Examine the item(s) for latent prints and indicate the latent with suitable markings as appropriate to be preserved by photography.
7 Interpretation

A. Developed latent prints appear red in color.

B. Developed latent prints will be evaluated for suitability as defined in Friction Ridge Comparison (LP-04-01).

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

8 Limitations

A. Oil Red O can cause the ink from thermal paper to fade/disappear. Any necessary ink or questioned document examination must be performed prior to Oil Red O processing.

B. The Latent Prints Section uses petroleum ether as the main carrier with porous processing chemicals. Petroleum ether can dissolve the lipids that Oil Red O stains. Therefore Oil Red O cannot be used in sequence with other porous processing chemicals unless an alternate carrier is validated. Physical Developer can be used after Oil Red O processing. Oil Red O can be used on currency, thermal paper, or paper that is suspected of having been wet.

C. Although other buffer solutions are available, the Latent Prints Section uses the water buffer to rinse evidence after Oil Red O processing.

D. Most latent prints should develop within 30 minutes; however, latent prints will not continue to develop after 90 minutes.

E. Heavy background staining of evidence may occur and have a negative effect on the contrast and clarity of any latent prints developed. This staining will appear a deep red color. Remove evidence immediately to avoid over-processing.

F. Latent prints developed with Oil Red O can fade overnight and must be preserved the same day the evidence is processed.

G. The water buffer should be changed out frequently between items of evidence, using fresh water with each item as necessary.

9 Literature and Supporting Documentation


## Revision History

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ACID YELLOW 7 (AY) PROCESSING

1 Scope
AY is a technique available to develop or enhance latent prints that have been left in blood on dark, non-porous evidence. It stains the proteins in the blood and fluoresces under an alternate light source. Prints developed using AY must be photographed under an alternate light source with a blue-green light (400-490 nm).

AY may destroy blood for serology testing. Have evidentiary blood samples collected by appropriate personnel prior to latent print processing.

AY can be used in conjunction with other processes if used in the following order:

1. Cyanoacrylate Ester (Super Glue)
2. AY
3. Rhodamine 6G Fluorescent Dye

2 Specifications
AY Fixing Solution
AY Working Solution
AY Rinse

3 Related Documents
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)
Rhodamine 6G Fluorescent Dye Processing (LP-02-09)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Spex CrimeScope (LP-INS-11)
Latent Print Worksheet (LAB-LP-01)

4 Safety
A. Wear personal protective equipment. This includes but is not limited to gloves, lab coat, and eye protection.
B. Chemicals used in preparation and process are flammable and irritant.
C. Avoid contact with skin and eyes.
D. Mix only in a vent hood.
E. Caution should be exercised when handling evidence which contains blood.
F. Wear the appropriate protective eye wear when viewing evidence under alternate light sources.

5 Equipment, Materials, and Reagents
- Distilled water
- 5-Sulfsalicylic Acid Dihydrate (ACS or Reagent grade) (SSA)
- Acid Yellow 7 (AY)
• Glacial Acetic Acid
• Ethanol
• Fume hood
• Balance
• Glass beakers
• Graduated cylinder
• Magnetic stirrer
• Three (3) glass trays
• Benchtop rocker
• Dark storage bottles
• Alternate light source
• Camera
• Filter paper
• Spray bottle

6 Standards, Controls, and Calibration

A. Reagent Control – Apply to a sample of dried blood prints and let dry. Prints should fluoresce under the blue-green light of an alternate light source (400-490 nm). Complete log sheet including an indication of results.

B. Surface control – When applying the solutions to a surface of concern, test a similar substrate prior to application on evidentiary items.

7 Procedure

7.1 Reagent Preparation

A. Fixing Solution

   20 g  5-sulfosalicylic acid dihydrate
   1000 mL distilled water

1. Dissolve 20 g 5-sulfosalicylic acid in 1000 mL distilled water. A stirring device should be used for mixing.

2. Store reagent in a dark bottle.

3. Shelf life: 6 months.

B. Working Solution

   1 g Acid Yellow
   700 mL distilled water
   250 mL ethanol
   50 mL glacial acetic acid

1. Dissolve 1 g Acid Yellow in 700 mL distilled water.

2. Add 250 mL ethanol.

3. Add 50 mL glacial acetic acid.

4. Store reagent in a dark bottle.

5. Shelf life: 6 months.
C. Rinse Solution

- 700 mL distilled water
- 250 mL ethanol
- 50 mL glacial acetic acid

1. Add 250 mL ethanol to 700 mL distilled water.
2. Add 50 mL glacial acetic acid.
3. Store reagent in a dark bottle.
4. Shelf life: 6 months.

7.2 Application

1. Immerse the evidence in a glass tray containing enough fixing solution to cover the evidence.
2. Place the glass tray on the benchtop rocker and use an appropriate setting to rock the fixing solution back and forth for 3-5 minutes, increasing the processing time for a greater amount of blood.
3. Alternatively, if the evidence does not fit in a glass tray, the fixing solution can be applied by moistening a piece of filter paper thoroughly with a spray bottle containing the fixing solution, and pressing the paper onto the entire area of interest and allowing to process for 3-5 minutes.
4. Remove the evidence and place in a second glass tray containing enough working solution to cover the evidence.
5. Place the glass tray on the benchtop rocker and use an appropriate setting to rock the working solution back and forth for 5-10 minutes, increasing the processing time for a greater amount of blood.
6. Alternatively, the staining solution can be applied using a spray bottle. Allow the stain to react for 5-10 minutes.
7. Remove the evidence and place in a third glass tray containing enough of the rinse solution to cover the evidence.
8. Place the glass tray on the benchtop rocker and use an appropriate setting to rock the rinsing solution back and forth for 1 minute.
9. Alternatively, the rinse solution can be applied using a spray bottle. Excess rinse solution can be removed with towels or special vacuums that can handle liquids.
10. Remove the evidence and let dry.
11. Developed prints are observed through an appropriate viewing filter using an alternate light source at 400-490 nm (450 is ideal).
12. Examine the evidence for latent prints. Mark any latent prints to be preserved by photography.

8 Interpretation

A. In the presence of blood, a color change will occur from a reddish-brown color to a fluorescent yellow.
B. Developed prints are analyzed for suitability as defined in Friction Ridge Comparison (LP-04-01).

C. Proceed to Digital Imaging of Friction Ridge Impressions (LP-02-16) to preserve suitable prints.

9 Limitations

A. AY is not permitted for use on firearms, ammunition components, or metal items submitted for trace evidence analysis. Amido Black is a permitted alternative.

B. AY may not be successful on all substrates, and it is recommended that it be tested on similar substrates prior to application on evidentiary items.

C. Cyanoacrylate Ester (Super Glue) Processing may interfere with this process.

10 Literature and Supporting Documentation

Atkins, Amanda L. Development of Bloody Latent Prints on Dark Surfaces. United States Army Criminal Investigation Laboratory PowerPoint.


Texas DPS Crime Laboratory, Austin Latent Print Section. Acid Yellow 7 Validation. 2014-2016.
Revision History

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FRICION RIDGE EXEMPLARS SUBMITTED EVIDENCE

1 Scope
Fingerprint and palm print exemplars are often submitted as evidence for comparison purposes. These exemplars may be retained along with any latent print evidence preserved.

2 Related Documents
Friction Ridge Comparison (LP-04-01)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)
Laboratory Submission Form (LAB-201)

3 Safety
If submitted exemplars appear to have blood or any other body fluids on them, gloves should be worn. The exemplars should be sealed in plastic and marked with a biohazard label.

4 Equipment, Materials, and Reagents
Latent Print Envelope

5 Standards and Controls
None

6 Procedure
1. Label with lab case number, the LIMS number, and forensic scientist’s initials. Check that all prints are in proper sequence and order.
2. Compare with prints per case request.
3. Retain original or quality copy in case record if used for comparison.
4. In some instances, the individual’s name may be missing or illegible on the exemplars.
   a) Compare to exemplars for the SID number that contain the individual’s name or alias, if available.
   b) If no exemplars that contain the individual’s name or alias are available, compare the right or left thumb from the submitted exemplars to the corresponding thumb of the driver’s license or identification card thumbprints to ensure the correct exemplars have been obtained.
   c) Verification by another examiner must be performed.
   d) If no exemplars, driver’s license records, or identification card records are available, use the name listed on the Laboratory Submission Form (LAB-201) or contact the submitting agency.

7 Interpretation
The submitted exemplars are used for direct comparison to suitable latent, patent, or plastic prints observed or developed in the case. These exemplars may also be used to compare to other exemplars.
8 Limitations

Submitted exemplars may be of insufficient quality to perform a complete examination.

9 Literature and Supporting Documentation

None
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| 03        | 12/19/2012    | Minor Revision – LAB-LP-04 added |
| 04        | 11/18/2013    | Minor Revision – Sections 6, 7 |
| 05        | 03/18/2016    | Minor Revision – Sections 4 and 6  
Advisory Board 09/16/2015 |
| 06        | 11/20/2017    | Major Revision – Section 2  
Minor Revision – Section 4 |
| 07        | 05/09/2019    | Revision – Sections 2 and 6 |
FRICTION RIDGE EXEMPLARS FROM CRIME RECORDS

1 Scope

Crime Records maintains a growing database of exemplars that are submitted to DPS for both criminal and non-criminal purposes. These exemplars are available for comparison purposes in cases submitted to the DPS Crime Laboratory System. Both fingerprints and palm prints are available to print for comparison purposes from the archive database. Access to the database is secure and managed by Crime Records.

2 Related Documents

Friction Ridge Comparison (LP-04-01)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)

3 Equipment, Materials, and Reagents

Latent Print Envelope

4 Standards and Controls

None

5 Procedure

1. From the computerized criminal history (CCH), obtain the state identification number (SID) for individuals to be compared.

2. Print relevant fingerprint or palm print exemplars, as needed, from the database terminal in the Latent Prints/Latent AFIS Section. If there are no exemplars for the provided SID number or if the copies from the database are poor quality, obtain the master card from Crime Records.

   a) The master card may also be uploaded to DIMS and used for comparison purposes at the discretion of the primary forensic scientist and any reviewer.

3. In some instances, the individual’s name may be missing from the fingerprint exemplars.

   a) Compare to additional exemplars for the provided SID number that contain the individual’s name or alias, if available.

   b) If no additional exemplars are available, compare the right or left thumb from the exemplars to the corresponding thumb of the driver’s license or identification card thumbprints to ensure the correct exemplars have been obtained.

   c) Verification by another examiner must be performed.

4. Stamp all printed CJIS records “For Official Use Only”.

5. Label with lab case number and forensic scientist’s initials.

6. Check that all prints are in proper sequence and order.

7. Compare with prints per case request.

8. Retain original or quality copy in case record.
6 Interpretation

The exemplars are used for direct comparison to any suitable latent, patent, or plastic prints observed, developed, and/or further developed in the case. These exemplars may also be used to compare to other exemplars.

7 Limitations

A. Exemplars on file may be of insufficient quality to perform a complete examination.

B. Regional laboratories may not have access to some exemplars and must request the exemplars through the Austin Latent Prints Section.

C. All laboratories must follow the rules and regulations outlined in the CJIS Security Policy.

8 Literature and Supporting Documentation


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COLLECTION OF FRICTION RIDGE EXEMPLARS FROM LIVING SUBJECTS

1 Scope

Procedures to record and reproduce friction ridge skin are an absolute necessity if any practical use is to be made of fingerprint patterns. Various means are specifically designed to obtain the best results.

Rolled prints are taken because they capture the full pattern area including deltas and cores. Plain prints are taken to verify the sequence of the rolled prints and because they more closely represent actual chance impressions located at crime scenes.

2 Related Documents

Friction Ridge Comparison (LP-04-01)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)

3 Safety

Gloves should be worn in instances where open wounds, sores, or visible infections are present.

4 Equipment, Materials, and Reagents

- Flat, smooth surface
- Black fingerprint ink
- Ink roller
- Card or paper holder
- Fingerprint cards or copy paper
- Ceramic ink pad
- Adhesive retabs
- Supplies for cleanup
- Special spoons for abnormal conditions
- Latent Print Envelope

5 Standards and Controls

All friction ridge exemplars collected from a living subject shall contain the following information: name, date of birth, and signature of the subject being printed; date prints taken; and signature of individual taking the prints.

6 Procedure

If possible, ensure the area of friction ridge skin to be recorded is clean prior to collection of exemplars.

6.1 Fingerprints

1. Use ceramic ink pad or put ink on flat surface and spread it out with the roller until surface is covered with a thin, even layer of ink. Special care should be taken when applying ink. Too much ink will cause the prints to smear; too little ink will make them light and incomplete.
2. The fingers should be rolled from nail to nail over the inked surface taking special care to include a portion of the finger below the first joint flexure crease and the entire pattern area of the first joint. Start with the right hand and finish with the left.

3. If using fingerprints cards, roll the fingers in the appropriate box marked on the card. Apply even pressure during this process to avoid smearing or smudging. Roll the fingers away from the thumb and the thumbs toward the body. If prints are taken using regular paper with no markings, include finger number, hand, and other notations as applicable.

4. Roll the ink on the flat surface again and take the plain impressions for both hands following the same sequence procedures with right and left hands. Fingers should be held straight out and together when placed on card. Take plain impressions of the thumbs.

5. If bandaged or broken appendage and in certain instances of deformity, there should be an attempt to record a complete set of prints. When prints cannot be taken, there must be notations made on the card explaining the reason.

6.2 Palm Prints

1. Apply ink directly to outstretched palm with roller taking care to get ink on all appendages and lower heel of palm.

2. Place paper or palm print card on a tubular apparatus or convex surface.

3. Starting with the tips of the fingers, apply to tubular apparatus or convex surface and roll forward until entire palm is captured on the paper.

4. Record the outer edge of the hypothenar area of the palm (“check writers” palm) by having the subject hold their hand in a position to apply ink and transfer it to paper.

5. Record the outer edge of the thenar area of the palm (thumb side) by having the subject hold their hand in a position to apply ink and transfer it to paper.

6.3 Footprints

1. Apply ink to soles of the feet with roller taking care to include all appendages.

2. Place sole of foot on an appropriately sized sheet of paper.

6.4 Major Case Prints

1. In addition to the rolled and plain impressions on the fingerprint card, major case prints should include:
   a) palm prints, impressions of the hypothenar and thenar sides of the palms,
   b) complete rolled impressions of the fingers, including the medial and proximal phalangeal pattern zones, and
   c) fingertip impressions rolled from the center of the finger to the nail and from one side to the other.
7 Interpretation

A. Fully recorded, quality exemplars are extremely important for comparison purposes. They can provide all areas of friction ridge detail necessary to reach a definitive conclusion.

B. If the collection of exemplars fails to record sufficient quality of ridge detail for a complete examination, reprinting of the subject should be performed.

8 Limitations

Limitations exist when the person being printed has an injury (permanent or temporary) or deformity that prevents a complete set of prints being taken.

9 Literature and Supporting Documentation


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Major Revision – Section 6 |
| 05        | 03/18/2016     | Minor Revision – Title, Sections 1, 4, 6.2, and 6.4  
Advisory Board 09/16/2015 |
| 06        | 11/20/2017     | Major Revision – Sections 2, 5, 6, and 9 |
| 07        | 05/09/2019     | Revision – Sections 2, 4, 6, and 9 |
COLLECTION OF FRICTION RIDGE EXEMPLARS FROM DECEASED SUBJECTS

1 Scope

There is usually little difference between printing a living or deceased subject with respect to either purpose or technique. Printing the deceased is most commonly done to establish or confirm identity. Since the deceased may not be available for additional printing, it is best to obtain as many sets of exemplars as necessary in order to have a complete recording of the friction ridge skin.

2 Related Documents

Friction Ridge Comparison (LP-04-01)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)

3 Safety

A. Always wear gloves to avoid contamination.
B. Exemplars from deceased subjects should be sealed in plastic and marked with a biohazard label.

4 Equipment, Materials, and Reagents

- Flat, smooth surface
- Black fingerprint ink
- Ink roller
- Fingerprint cards or paper
- Adhesive retabs
- Bone cutters, forceps, and scalpels
- Spoons
- Alcohol wipes
- Mikrosil or Accutrans
- Latent Print Envelope
- Camera
- Scale

5 Standards and Controls

None

6 Procedure

1. If the hands are in reasonably good condition, obtaining good prints is usually accomplished by straightening the digits and flattening the palm. It is possible to “break” the rigor by straightening the digits using force. The hands can then be printed using the same steps as for living people.

2. If breaking rigor is difficult or ineffective, it may be necessary for the hands to be removed from the deceased by the medical examiner so that they may be processed in the laboratory. The printer should be aware that legal
restrictions exist and only legally designated people should perform this activity.

3. Photography may be used to capture ridge detail. A scale with necessary identifying data must be included in the photograph.

4. The primary difficulty encountered in printing the deceased is the deep wrinkling or creasing of fingers and palms. This can often be overcome by stretching the skin tight if the skin is still flexible.

5. The skin containing ridge detail may become separated from the underlying tissues. It should be collected and processed immediately. Occasionally, the skin can be obtained by manually removing the skin from the internal tissue and bone. Prints may be recorded by securing the skin around a gloved finger or palm and printing normally.

6. If the condition of the skin is such that ordinary techniques fail to produce the desired results, the fingers or hands may be severed. If the fingers are severed from the hand, they should be placed in individual containers and properly labeled.

7. Additional techniques may be necessary depending on the condition of the skin. Reference Chapter 4, The Fingerprint Sourcebook for additional procedures.

7 Interpretation

A. Fully recorded, quality exemplars are extremely important for comparison purposes. They can provide all areas of friction ridge detail necessary to reach a definitive conclusion.

B. If the collection of exemplars fails to record sufficient quality for a complete examination, reprinting of the subject should be performed.

8 Limitations

Due to the range and degree of degradation of friction skin that can occur with deceased individuals, it may not be possible to obtain a quality set of exemplars.

9 Literature and Supporting Documentation


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FRICION RIDGE COMPARISON

1 Scope

Establish unifying documentation for the methodology used in the examination of friction ridge detail by the Latent Prints Section. Friction ridge impression examinations are conducted by examiners using the Analysis, Comparison, Evaluation, and Verification (ACE-V) Methodology which includes both qualitative and quantitative aspects. These procedures are intended to assist in the examination and documentation of friction ridge detail and resulting conclusions. These procedures are to be used in conjunction with applicable laboratory policies, good laboratory practice, and proper scientific methodology.

2 Related Documents

Examination Verifications (CLS Manual)
Latent AFIS-Latent Prints Workflow (Regional Crime Laboratories) (AF-02-03)
Latent AFIS-Latent Prints Workflow (Austin Crime Laboratory) (AF-02-04)
Report Writing Guidelines (LP-01-07)
Case Review (LP-01-08)
Instructions for Latent Print Worksheet (LP-02-01A)
Instructions for Latent Print Comparison Worksheet (LP-02-01B)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
AFIS Database Searches (LP-04-02)
Latent AFIS Comparison Worksheet (LAB-AF-04)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)

3 Safety

A. Lifts, casts, or exemplars that contain possible blood or other body fluids should be sealed in plastic and marked with a biohazard label.

B. Ridge Pointers/Counters have sharp ends; handle with caution.

4 Equipment, Materials, and Reagents

- Fingerprint Magnifier
- Ridge Pointers/Counters
- Crimcon
- Digital Workstation
- Latent Print Envelope

5 Standards and Controls

None
6 Procedure

6.1 Analysis

A. Analysis includes the assessment of the impression to determine its value based on level 1, 2, and 3 friction ridge details. This assessment is affected by many factors including: anatomical aspects, transfer conditions, transfer media, substrate, development techniques, preservation techniques, and environmental conditions.

1. **Level 1** is not sufficient for Identification purposes and may not be sufficient for Exclusion purposes. This level may include: general ridge flow, pattern configuration, core and delta location, distinction of finger versus palm, and other information enabling orientation. Level one detail can also describe the general directions and positions of other features such as creases, scars, incipient ridges, or other imperfections.

2. **Level 2** is used in conjunction with level one detail to enable Identification and Exclusion. This level may include: ridge endings, bifurcations, dots, continuous ridges, or combinations thereof. Second level details of creases, scars, incipient ridges, or other imperfections describe the actual path of the friction ridges to include the starting position, the path the ridge takes, the length of the path, and where the path stops. Second level details of other features cannot exist without first level details of the same features.

3. **Level 3** is used in conjunction with levels one and two detail to enable Identification and Exclusion. This level may include: ridge width and shape, pores, edge contour, and other permanent details. Third level details of creases, scars, incipient ridges, and other imperfections are the morphologies or shapes within their structures and cannot exist without first and second levels of detail of the same features.

B. Analyze friction ridge impression(s) by observing aspects of the three levels of friction ridge detail based on the quality of features (clarity of the observed features), the quantity of features (amount of features and area), the specificity of features (rarity), and their relationship.

C. Criteria to determine latent print suitability

Latent print suitability determinations must be based on objective and demonstrable data and will be analyzed according to the Suitability Criteria.

**Suitability Criteria:**

Seven clear Level 2 detail plus at least two of the following:

1. Observable orientation
2. Observable anatomical source
3. At least one focal point
4. At least one region of distinct and reliable friction ridge detail to serve as a target group

Due to the extreme variability of latent prints, the reporting examiner may determine a print to be suitable that does not meet the Suitability Criteria with the agreement of a second examiner. The reporting examiner will document the reasoning and how his/her opinion was reached on the composite, and a latent review must be
performed. All other documentation requirements for a print determined Suitable for Identification will be followed.

D. If the suitability criteria is not met, then the print is determined Not Suitable for Identification.

   1. Further analysis is discontinued.
   2. Proceed to latent review (LP-01-08).

E. If the suitability criteria is met, then the print is determined Suitable for Identification.

   1. Document anatomical source based on observations during analysis (e.g., FP, PP, etc.) and possible orientation (designate with arrow).
   2. The presence of level 1, level 2, and level 3 friction ridge details may also be documented.
   3. The analysis may be documented as a narrative on bench notes or on a composite or other enlargement by marking the orientation indicators and friction ridge features observed. Alternative forms of documenting analysis are acceptable.
   4. Proceed to latent review (LP-01-08).
   5. Proceed to Comparison.

6.2 Comparison

If the Analysis phase provides indicators as to the probable anatomical area and orientation of the latent print, a side-by-side comparison with the appropriate area of the exemplar is initially conducted. However, in the absence of these indicators, it is the responsibility of the examiner to compare all available anatomical areas and possible orientations of the latent print to the exemplars. The reporting examiner may consult with other examiners as to the indicators in question.

Comparisons may occur between a latent print and exemplar, a latent print and latent print, or an exemplar and exemplar.

A. If there are no exemplars or no relevant exemplars to compare:

   1. Document “Not Compared” on the worksheet.
   2. Forward the case to the Latent AFIS Section for an automated search. Follow AFIS Database Searches (LP-04-02), and Latent AFIS-Latent Prints Workflow (Regional Crime Laboratories) (AF-02-03) or Latent AFIS-Latent Prints Workflow (Austin Crime Laboratory) (AF-02-04).

B. If there are exemplars to compare:

   1. A target group of friction ridge features observed during the analysis phase is selected and searched within the corresponding area of the other impression.
   2. Using all levels of friction ridge detail available, conduct side-by-side observations to determine whether two impressions are in agreement or disagreement based upon features, ridge sequence, and spatial relationships within the tolerances of clarity and distortion.
3. When required, select additional target groups of features observed during the analysis phase and/or re-orient the latent print and compare with the exemplars.

4. Corresponding ridge features will be documented on a composite or other enlargement by marking the friction ridge detail observed in agreement.

5. Observation of agreement or disagreement between the impressions initiates the evaluation phase.

6. In some cases, the examiner may reassess suitability and determine the impression **Not Suitable for Identification** with documented justification and discontinue further comparison and evaluation.

7. Proceed to Evaluation.

6.3 Evaluation

Once the examination progresses from the comparison phase to the evaluation phase, it is determined whether the information is sufficient to decide whether the unknown impression is from a different source (**Excluded**), from the same source (**Identified** as the compared impression, or is **Inconclusive** (due to exemplars/due to latent print/due to not meeting the exclusion criteria). These conclusions are described below.

A. Exclusion

Exclusion is the conclusion that there are sufficient features in disagreement between two areas of friction ridge impressions to conclude the two impressions did not originate from the same source. Exclusion of a subject can only be reached if all relevant comparable anatomical areas are represented and legible in the exemplars. Notes and reports shall clearly state that the exclusion refers to the subject.

1. Criteria to determine Exclusion

   An exclusion conclusion is reached when the latent print meets or exceeds the Exclusion Criteria.

   The latent print must have, at a minimum:

   a) **Observable orientation**
   
   b) **Observable anatomical source**
   
   c) **At least one focal point**
   
   d) **At least two regions of distinct and reliable friction ridge detail to serve as a target group**

2. A latent print that does not meet the Exclusion Criteria may be excluded if the following conditions are met:

   a) **The latent print is Identified to a latent print that does meet the Exclusion Criteria, and**
   
   b) **The latent print to latent print Identification is verified, and**
   
   c) **The latent print that does meet the Exclusion Criteria is compared to an individual resulting in an Exclusion conclusion, and**
   
   d) **The Exclusion conclusion is verified.**
When prints have been determined to not be in agreement:

3. Document on the worksheet:
   a) Indicate Exclude or Excluded and [subject name].
   b) The date of Exclusion will be documented as a range of dates from start date to complete date.

4. Continue to compare the print to other exemplars in the case, if available, or

5. Discontinue comparison, and

6. Forward the case to the Latent AFIS Section for an automated search. Follow AFIS Database Searches (LP-04-02), and Latent AFIS-Latent Prints Workflow (Regional Crime Laboratories) (AF-02-03) or Latent AFIS-Latent Prints Workflow (Austin Crime Laboratory) (AF-02-04).

B. Identification

Identification is the conclusion that there are sufficient features in agreement between two areas of friction ridge impressions to conclude the two impressions originated from the same source.

When prints have been determined to be in agreement:

1. The evaluation is documented with the friction ridge detail that was used to support identification on a composite or other enlargement by marking the friction ridge detail observed in agreement.

2. Document on the photograph or composite containing the identified latent print:
   a) Indicate ID, anatomical source and subject identified
   b) Indicate anatomical orientation of the print with a mark:
      i. For a finger or toe impression, the mark will be a half circle with the top of the circle pointing in the same direction as the tip of the finger or toe.
      ii. For a joint impression, the mark will be two lines parallel with each other with the image in between.
      iii. For a palm or sole impression, the mark will be two lines at right angle with right angle pointing in the same direction of the hypothenar area of the palm or sole or as appropriate.

3. Document on the exemplar used for comparison and identification:
   Indicate ID and [date of conclusion]

4. Document on the worksheet
   Indicate ID and [anatomical source and subject], followed by the [Verification Criteria]

5. Further comparison of an Identified print to remaining individuals in a case is not required.

6. Proceed to Verification.
C. Inconclusive - Due to Exemplars (Incomplete)

An inconclusive conclusion may result when a latent print cannot be identified or excluded due to an absence of complete and legible exemplars (e.g., poor quality prints and/or lack of comparable areas). In such an instance, the inconclusive conclusion means that the impression needs to be reexamined using clearly and completely recorded exemplars in order for a definitive conclusion to be reached. This conclusion is based only on the clarity and quantity of the exemplars, regardless if corresponding features have been located in agreement between the latent print and the exemplar.

When no definitive conclusion can be reached based on the absence of complete, legible and relevant exemplars:

1. **Document on the worksheet**
   a) Indicate Inconclusive due to [reason]
   b) The date of **Inconclusive - Due to Exemplars (Incomplete)** will be documented as a range of dates from start date to complete date.

2. The latent print may be compared to other exemplars.

3. Forward the case to the Latent AFIS Section for an automated search. Follow AFIS Database Searches (LP-04-02), and Latent AFIS-Latent Prints Workflow (Regional Crime Laboratories) (AF-02-03) or Latent AFIS-Latent Prints Workflow (Austin Crime Laboratory) (AF-02-04).

D. Inconclusive - Due to Latent Print (Unable to Identify or Exclude)

An inconclusive conclusion may also result when corresponding features are observed but are not sufficient to identify. Likewise dissimilar features may be observed but are not sufficient to exclude. In either case, the inconclusive conclusion means that the unknown impression was neither identified nor excluded as originating from the same source. In this situation, the submission of additional exemplars will not assist in determining Identification or Exclusion.

When no definitive conclusion can be reached when corresponding features are observed but not sufficient to identify (or dissimilar features may be observed but not sufficient to exclude):

1. **Document on the worksheet**:
   a) Indicate Inconclusive due to [reason]
   b) The date of **Inconclusive - Due to Latent Print** will be documented as a range of dates from start date to complete date.

2. The latent print may be compared to other exemplars.

3. Proceed to Verification.

E. Inconclusive - Due to Latent Print (Unable to Exclude)

An inconclusive conclusion may also result when the latent print does not meet the established Exclusion Criteria and no corresponding features are observed. In this situation, all comparison efforts for available exemplars have been exhausted and all relevant exemplars are present in order to perform a thorough comparison. This
inconclusive conclusion means that a reliable and repeatable conclusion is unable to be established with the quantity and clarity of friction ridge detail present.

When a definitive Exclusion conclusion cannot be reached when all relevant exemplars are available and a thorough comparison has been performed:

1. Document on the worksheet:
   a) *Indicate Inconclusive due to “does not meet the Exclusion Criteria”*
   b) *The date of Inconclusive – Does Not Meet the Exclusion Criteria will be documented as a range of dates from start date to complete date.*

2. The latent print may be compared to other exemplars.

3. Forward the case to the Latent AFIS Section for an automated search. Follow AFIS Database Searches (LP-04-02), and Latent AFIS-Latent Prints Workflow (Regional Crime Laboratories) (AF-02-03) or Latent AFIS-Latent Prints Workflow (Austin Crime Laboratory) (AF-02-04).

F. Latent print(s) reanalyzed as Not Suitable following comparisons
   1. There must be justification documented on the composite(s).
   2. This change in suitability will be latent reviewed.

6.4 Verification

A. Verification(s) must be performed on all comparison conclusions.

B. Verification(s) must be performed prior to releasing information.

C. Verification(s) must be completed prior to generation of laboratory report.

D. The worksheet, photograph and/or composite, and exemplars are submitted to another examiner who is authorized to perform independent casework in latent print comparisons.

E. Verification Criteria (VC) This quantity determines the number of verifications required prior to reporting a conclusion.

1. Criteria Requiring Single Verification:
   a) *Latent to Exemplar Identification with Verification Criteria of eleven or more*
   b) *Inconclusive due to Latent Print (Unable to Identify or Exclude)*
   c) *Inconclusive due to Latent Print (Unable to Exclude)*
   d) *Inconclusive due to Exemplars (Incomplete)*
   e) *Exclusion*
   f) *Exemplar to exemplar identification*
   g) *Latent to Latent Identification conclusion with Verification Criteria of eleven or more*

2. Criteria Requiring Double Verification:
   a) *Latent to Exemplar Identification with Verification Criteria of ten or fewer*
   b) *Latent to Latent Identification with Verification Criteria of ten or fewer*
F. Verifying examiner(s) will perform independent analysis, comparison, and evaluation in accordance with Friction Ridge Comparison (LP-04-01).

G. The worksheet, photograph and/or composite, and exemplars will be reviewed for proper description and documentation.

H. If the verifying examiner(s) concurs with reporting examiner’s conclusion, the verifying examiner(s) will document as follows:
   1. Initials placed on the worksheet next to the listed comparison result and at the top under “Verification” along with the date verified.
   2. Initials on the photograph and/or composite and exemplars used for comparison.

I. Inter-laboratory Verification(s) – DPS Laboratories may request verification(s) from another DPS Laboratory. The requesting DPS Laboratory should forward the relevant worksheet(s), composite(s), and exemplar(s) to the verifying DPS Laboratory.

   If evidence such as latent print lift cards or submitted exemplars are forwarded, the transfer must be tracked in LIMS.

J. Once required verification(s) is completed:
   1. Proceed to Report Writing Guidelines (LP-01-07). The conclusion will be formulated into a report for distribution.
   2. Preliminary results may be communicated to appropriate requestors.

K. In the event that the verifying examiner does not concur with the reporting examiner’s conclusion and a consensus cannot be reached, then the reporting examiner’s TPOC (or alternate TPOC if the TPOC is the reporting or verifying examiner), immediate supervisor, and/or Quality Manager must be notified and oversee the resolution.

   The verifying examiner shall document the initial verification result and any additional notes for each relevant interpretation/opinion, and initial/date the relevant examination documentation.

   1. The verifying examiner shall return the materials to the reporting examiner for additional review. Additional discussion shall occur as necessary.

   2. If a consensus cannot be reached, the reporting examiner will forward the materials to the TPOC (or alternate TPOC if the TPOC is the reporting or verifying examiner), supervisor and/or Quality Manager, for resolution.

   3. Additional examination(s) and/or examiner(s) may be used to assist the reporting and verifying examiners in their resolution and the observations must be documented.

   4. Based on the consideration of additional information, the reporting examiner or verifying examiner may change his/her interpretation/opinion. The examiner must never be pressured, forced, or told to change his/her interpretation/opinion to agree with the interpretation/opinion of another individual.
6. If the reporting or verifying examiner changes his/her interpretation/opinion, the case notes will be updated with documentation including the examiner’s initials, date, and updated conclusion.

7. If, at the end of the resolution process, the reporting examiner and all verifying examiners cannot reach a unanimous consensus for the final interpretation/opinion, then the interpretation/opinion must be reported as inconclusive in accordance with Examination Verification (LOG-03-16).

6.5 Consultation

A. Documentation for consultation that occurs during the analysis and comparison phase is not required but may be documented and retained in the case file.

B. Significant consultation that is necessary for an examiner to reach a conclusion during evaluation must be documented by all participating parties and retained in the case file. Verification of a conclusion shall be performed by an examiner that did not participate in this consultation.

6.6 Interpretation

A. If an impression is divided into two or more parts caused by natural breaks, unnatural breaks, or simultaneous impressions, and all parts can stand alone as Suitable for Identification when viewed separately:
   1. The examiner may separately examine each portion, or
   2. The examiner may jointly examine the whole impression if it is the opinion of the examiner that the parts of the impression were made or left at the same time and there exists description and documentation to justify.

B. If an impression is divided into two or more parts caused by natural breaks, unnatural breaks, or simultaneous impressions, and all parts, cannot stand alone as Suitable for Identification when viewed separately:
   1. The examiner may determine the prints Not Suitable for Identification, or
   2. The examiner may combine relevant parts to be considered as one if it is the opinion of the examiner that both parts of the impression were made or left at the same time and there exists description and documentation to justify.

7 Limitations

A. Friction ridge impressions will be compared to available submitted exemplars or those on file at DPS for individuals listed in the case, taking into consideration the customer’s request and case information. If an FBI UCN is provided, the Latent AFIS Supervisor can assist in obtaining exemplars.

B. Latent print suitability determinations are always open to the scrutiny of others.

C. The surface the print was recovered from, the possibility of distortion, lifted foreign objects, tonal reversals, and mirrored prints need to be considered during the analysis and comparison phases as these factors may lead to false exclusions.

8 Literature and Supporting Documentation

Ashbaugh DR. Quantitative-Qualitative Friction Ridge Analysis. 1999.


<table>
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<tr>
<th>Version #</th>
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<th>Brief Description of Change(s)</th>
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<td>00</td>
<td>03/01/2006</td>
<td>Original Issue; Modified from revision 05/15/2002</td>
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| 01        | 03/23/2009     | Major Revision – Sections 4, 6.4, and 8  
Minor Revision – Sections 5, 6.1, 6.2, 6.3, and 9 |
| 02        | 10/16/2009     | Major Revision – Sections 3, 6.1, 6.2, 6.3, and 6.4  
Advisory Board 07/16/2009 |
| 03        | 05/19/2010     | Major Revision – Section 6.4  
Minor Revision – Sections 3, 6.1, and 6.2  
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| 04        | 02/10/2012     | Major Revision – All sections  
Advisory Board 01/04/2012 |
| 05        | 06/26/2012     | Major Revision – Sections 3, 6.2, 6.3, 6.4, 6.5, 6.6, and 7  
Minor Revision – Sections 1 and 6.1  
Advisory Board 06/12/2012 |
| 06        | 12/19/2012     | Minor Revision – Section 6.1 C Documentation orientation  
Austin Laboratory references  
Section 6.3 A NID reference  
Section 6.6 E Excluded |
| 07        | 11/18/2013     | Major Revision – Sections 3 and 6.3  
Changing “known print” to “exemplar” |
| 08        | 01/01/2015     | Minor Revision – Section 8  
Advisory Board recommendations |
| 09        | 03/18/2016     | Minor Revision – Sections 1, 2, 6.2, 6.3, 6.4, 6.5, and 7  
Advisory Board 09/16/2015 |
| 10        | 06/26/2017     | Major Revision – All sections  
Advisory Board recommendations |
| 11        | 11/20/2017     | Major Revision – Sections 6 and 8  
Minor Revision – Sections 1 and 7 |
| 12        | 05/09/2019     | Revision – Section 2, 6, 7 |
AFIS DATABASE SEARCHES

1 Scope
To establish unifying workflow instructions for forensic scientists to utilize when submitting a case for a potential AFIS database search. The forensic scientist will follow standard casework procedure up to and including comparing any suitable latent prints to individuals listed on the submission form for comparison. Cases with unidentified, suitable latent prints will be submitted for an AFIS examination; the only exception is for inconclusive conclusions (for any reason) with level 2 features marked in common with an exemplar print.

2 Related Documents
Latent AFIS Examination (AF-02-01)
Latent AFIS/Latent Prints Workflow (AF-02-03)
Report Writing Guidelines (LP-01-07)
Physical Evidence Examination (LP-02-01)
Digital Imaging of Friction Ridge Impressions (LP-02-16)
Friction Ridge Comparison (LP-04-01)
Latent Print Worksheet (LAB-LP-01)
Latent Print Comparison Worksheet (LAB-LP-04)

3 Procedure
3.1 Consultations
Consultations may occur at the request of the forensic scientist

A. Austin Crime Laboratory
1. Create an AFIS Search request in LIMS as a related request to the Latent Print Examination request and relate the offense.
2. Contact the Latent AFIS section supervisor or AFIS forensic scientist designee and request a consultation.
3. Provide an unmarked composite for the consultation.
4. The Latent AFIS section supervisor or assigned Latent AFIS forensic scientist will document the AFIS suitability on the composite and have the conclusion technically reviewed.
5. The technical review will be documented in LIMS. A Latent AFIS Activity Sheet (LAB-AF-02) will not be filled out if all prints are NS/AF.
6. The Latent Prints forensic scientist will document the AFIS suitability determination on the worksheet.
7. If the latent print(s) meets the criteria for an AFIS search, the case will be forwarded to the Latent AFIS section.
8. If the latent print(s) does not meet the criteria for an AFIS search, proceed to 3.4 A.
B. Other Regional Crime Laboratories

1. Create an AFIS Search request in LIMS as a related request to the Latent Print Examination request and relate the offense.
2. Contact the Latent AFIS section supervisor or AFIS forensic scientist designee and request a consultation.
3. The consultation will be performed electronically.
4. The Latent AFIS section supervisor or assigned Latent AFIS forensic scientist will determine the AFIS suitability and have the conclusion technically reviewed.
5. The technical review will be documented in LIMS. A Latent AFIS Activity Sheet (LAB-AF-02) will not be filled out if all prints are NS/AF.
6. The Latent Prints forensic scientist will document the AFIS suitability determination on the worksheet.
7. If the latent print(s) meets the criteria for an AFIS search, the case will be forwarded to the Latent AFIS section.
8. If the latent print(s) does not meet the criteria for an AFIS search, proceed to 3.4 A.

3.2 Submitting AFIS Database Searches

The following workflow will be used when submitting unidentified suitable latent prints in a new case or if additional unidentified suitable latent prints are observed/developed in a supplemental request, to the Latent AFIS section. The forensic scientist may submit all of the unidentified suitable latent prints in a case or a subset selected by the forensic scientist.

A. Austin Crime Laboratory

1. Create an AFIS Search request in LIMS as a related request to the Latent Print Examination request and relate the offense.
2. Edit the description of the case folder to LP/AFIS Folder.
3. If any of the images submitted to AFIS via the internal AFIS connection are calibrated with centimeters (cm) instead of inches, and the scale isn’t clearly labeled with cm, the forensic scientist must create a Laboratory Information Sheet (LAB-403, LAB-404) stating the following images are calibrated with cm and listing the asset IDs corresponding to those images. It will be printed and placed in the LP/AFIS folder.

B. Other Regional Crime Laboratories

1. Create an AFIS Search request in LIMS as a related request to the Latent Print Examination request and relate the offense.
2. The forensic scientist will create a submission form and email it to the Austin Evidence Coordination Section. If original submission form(s) are not in the LIMS Imaging Module, the forensic scientist will include a copy with their submission form.
3. If any of the images submitted to AFIS via the internal AFIS connection are calibrated with centimeters (cm) instead of inches, and the scale isn’t clearly labeled with cm, the forensic scientist must list on the submission form that...
the following images are calibrated with cm and list the asset IDs corresponding to those images.

C. Forensic scientists in all laboratories will submit the images via the internal AFIS connection.

1. Open the case folder in Adams Web and click on Assets icon
2. Select the assets to be exported
3. In the Export Options window, make the following selections:
   a) File Name Options: Unique ID
   b) Image Conversion Options: Do Not Convert Format (Default Setting)
   c) Convert to greyscale: No (Default Setting)
   d) Include a Watermark: No (Default Setting)
   e) Do not enter a password
4. Once selections are made, click OK and the assets will be exported
5. Logout of Adams Web
6. Open Downloads folder and select the folder corresponding to the case number
7. Check that all assets are present, in TIF format, and named with asset ID
8. Return to viewing the folder icon and leave this window open
9. Open Foray drive in a new window so that folders for each lab are displayed
10. Left click and drag the case folder from the original window to the folder in the second window which corresponds to the LP forensic scientist's laboratory location
11. Delete the folder from the Downloads folder after the file has been moved
12. Delete the case folder from the Foray drive once it is empty and prior to turning the case in for technical review

3.3 Submitting AFIS Database Searches for Supplemental Requests

If an AFIS-TLI, FBI-ULM, DHS reverse hit, or DoD reverse hit occurs, or if the agency calls in an AFIS Search request on a case with a previously issued Latent Print Examination Laboratory Report, the following procedure will be followed:

A. Austin Crime Laboratory

1. For reverse hits, the AFIS forensic scientist will obtain the case folder, Latent Print Envelope, and exemplars, and transfer them to the LP forensic scientist.
2. For agency request, the LP forensic scientist will obtain the case folder and Latent Print Envelope. The folder description will be updated in LIMS.
3. The LP forensic scientist will create the Latent Print Examination request in LIMS and then create the AFIS Search request as a related request and relate the offense. The assets will be submitted following the same instructions as for original case submission via the internal AFIS connection.
B. Other Regional Crime Laboratories

1. For reverse hits, the AFIS forensic scientist will obtain the case folder, Latent Print Envelope, and exemplars, and contact the assigned LP forensic scientist via email. The LP forensic scientist will create the Latent Print Examination request and then create the AFIS Search request as a related request and relate the offense.

2. For agency request, the LP forensic scientist will create the Latent Print Examination request and then create the AFIS Search request in LIMS as a related request, relate the offense, and will submit the assets following the same instructions as for original case submission via the internal AFIS connection.

3.4 After Technical Review of the AFIS Search Request

A. Negative results or all of the latent prints do not meet the criteria for an AFIS search

1. Responsibility of Laboratory Submitting AFIS Database Search:
   a) *If comparisons were performed, proceed to Friction Ridge Comparison (LP-04-01).*
   b) *If no comparisons were performed, proceed to Report Writing Guidelines (LP-01-07).*

B. Positive results

1. Responsibility of Laboratory Submitting AFIS Database Search:
   a) *Obtain candidate information from the case record.*
      i. *Austin Crime Laboratory – review and initial Latent AFIS Layout Sheet(s) (LAB-AF-01).*
      ii. *Other Regional Crime Laboratories – review, print, and initial Requester Notes from LIMS.*
   b) *Proceed to Friction Ridge Comparison (LP-04-01) for comparison of all unidentified suitable prints to exemplars of generated candidate(s).*
   c) *Proceed to Report Writing Guidelines (LP-01-07).*
   d) *Return composites to Latent Print Envelope and file in secure storage area.*

3.5 After AFIS Searches

The Latent AFIS Section will be notified if additional identifications necessitate the deletion of latent prints from any unsolved databases in which they are registered.

4 Interpretation

A. Cases with no suspects and evidence not requiring processing techniques for latent print development should be sent directly to Texas DPS Austin Crime Laboratory Latent AFIS Section.

B. The laboratory requesting AFIS database searches is responsible for reporting the results of the AFIS examinations.

C. Prints in the Unsolved Latent Database may be removed if the statute of limitations expires or if they have been identified.
D. Supplemental reports will follow this workflow and use the appropriate supplemental reporting statements.

5 Limitations

A. Latent prints that are suitable for identification may not meet the criteria for AFIS entry.

B. Latent prints that are determined not suitable for identification by the reporting forensic scientist will not be forwarded to the Latent AFIS Section.

C. To avoid confusion, images submitted to AFIS should contain only one latent print. If multiple latent prints can only be preserved in a single image, the LP forensic scientist will communicate to the AFIS forensic scientist which prints they are requesting be evaluated for an automated search and document the consultation.

D. If the internal AFIS connection is unavailable and a case must be submitted to AFIS, the following procedure will be followed:

1. Austin Crime Laboratory
   a) The forensic scientist will create an AFIS Search request in LIMS as a related request to the Latent Print Examination request and relate the offense.
   b) The forensic scientist will edit the description of the case folder to "LP/AFIS Folder" in LIMS.
   c) The forensic scientist will place composites of the latent prints to be examined for AFIS entry in the AFIS Search Request envelope in the Latent Print Envelope. Composites must contain a 1:1 image of the latent print and an enlargement at a minimum of 4:1.
   d) The forensic scientist will barcode the LP/AFIS Folder along with the Latent Print Envelope to the AFIS Search request location in the LP File Vault. It is not necessary to seal the Latent Print Envelope.

2. Other Regional Crime Laboratories
   a) The forensic scientist will create an AFIS Search request in LIMS as a related request to the Latent Print Examination request and relate the offense.
   b) The forensic scientist will submit the following via Evidence Coordination at the Austin Crime Laboratory:
      i. Laboratory Submission Form - For additional submissions, previously assigned case numbers should be listed as appropriate (if the original submission form is not scanned into LIMS, include a copy)
      ii. Properly labeled composites representing prints to be evaluated for AFIS entry.
         • Composites must contain a 1:1 image of the latent print and an enlargement at a minimum of 4:1.
         • Composites are considered examination records (work product/representation/depiction of the evidence image or lift).
### Revision History

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| 01        | 01/19/2012     | Major Revision – Sections 2, 3, 4, and 5  
Minor Revision – Section 1  
Advisory Board 06/12/2012 |
| 02        | 06/26/2012     | Major Revision – Sections 3, 4, 5, and 6  
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Advisory Board 06/12/2012 |
| 03        | 12/19/2012     | Minor Revision – References to Austin Crime Laboratory |
| 04        | 11/18/2013     | Major Revision – Sections 3 and 5 |
| 05        | 01/01/2015     | Major Revision – Section 3.1  
Minor Revision – Sections 1 and 2  
Advisory Board recommendations |
| 06        | 03/18/2016     | Major Revision – Sections 1, 2, and 3.3  
Advisory Board 09/16/2016 |
| 07        | 11/20/2017     | Major Revision – Section 3 |
| 08        | 05/09/2019     | Revision – All sections        |
CARON 6105 FINGERPRINT DEVELOPMENT CHAMBER

1 Scope
Instructions for the operation of the Caron 6105 Fingerprint Development Chamber used for accelerating the development of latent prints after treatment with IND, DFO, and Ninhydrin.

2 Related Documents
Ninhydrin Processing (LP-02-05)
DFO (1,8-Diazafluoren-9-one) Processing (LP-02-06)
IND (1,2-Indanedione) Processing (LP-02-17)

3 Safety
A. The unit is capable of reaching temperatures that could result in burns. Always wear protective clothing when accessing the unit. Use caution when opening the outer door.
B. Use eye protection, gloves and aprons if exposure to hazardous materials could occur.
C. When performing maintenance: Before removing top/back panel, disconnect all power.
D. Do not put more than 5 lbs on top of unit.

4 Equipment, Materials, and Reagents
- Caron 6105 Fingerprint Development Chamber
- Personal protective equipment

5 Standards and Controls
After initial set up and following any repairs, an appropriate chemically treated test print is used as a performance check to determine if the humidity chamber is operating as expected. All maintenance and performance checks on the humidity chamber are documented on the Equipment Log (LAB-405).

Instructions
A. Water connection
1. Fill Carboy 4 Liter water bottle mounted on secured holder on the side of chamber with distilled, reverse osmosis or deionized water (as needed). The bottle cap must have a weep hole to work properly and the water supply must gravity drain, or
2. Plumb the water drain connection to a facility drain. Connect the water inlet to a water supply. This chamber requires distilled, reverse osmosis or deionized water.

B. Start up
1. Turn on unit by pressing power switch.
2. The ‘power on’ indicator light, temperature, and timer displays will illuminate. Air should be gently circulating.
C. Temperature controller
   1. Change Temperature Set Point. Use the up and down arrow push-buttons to obtain the desired temperature set point (red upper display).
   2. The temperature is displayed in degrees Celsius (°C).
      a) IND: 100°C
      b) DFO: 100°C
      c) Ninhydrin: 80°C

D. Humidity controller
   1. Enable or disable humidity by pressing Humidity control switch on or off, respectively.
      a) IND: enabled (recommended) or disabled
      b) DFO: disabled
      c) Ninhydrin: enabled
   2. Change Humidity Set Point. Use the up and down arrow push-buttons to obtain the desired humidity set point (red upper display). The relative humidity is displayed in %.
      a) IND: 60% (when enabled)
      b) Ninhydrin: 70%

E. Countdown timer controller
   1. Set total countdown time to desired value using the four up and down arrow buttons.
      a) IND: 10 Minutes
      b) DFO: 10 Minutes
      c) Ninhydrin: 5 Minutes
   2. Open chamber door and place evidence inside chamber on shelf or attach evidence with evidence clips on hanging bars.
   3. Press the start button to start digital countdown timer.
   4. When the time remaining reaches 0:00, the alarm will buzz and the display turns red for 3 seconds.
   5. Open chamber door and remove evidence.
   6. Close chamber door.
   7. Press the stop button to turn alarm off; the time remaining resets to the total countdown time previously set.

F. Viewing light
   Turn on the light switch to illuminate the interior of the cabinet (as needed).
G. **Controller parameters**
   1. For diagnostic purposes (as needed). Pressing the advance button on bottom left corner of temperature and humidity controller will display the amount of time (in percent) that the heaters are on.
   2. Press the Infinity ∞/Home button to return to the original display.

**6 Limitations**

A. The chamber must be located in a dry, clean, and level area. Allow a 2 inch clearance from the back of chamber for proper air circulation.

B. Rubber stopper should be installed on the exhaust port on the backside of the chamber.

C. Maximum shelf load is 22 lbs per shelf.

D. The chamber drops in temperature slowly. For faster recovery time when lowering the temperature, open the door. To lower the humidity, open the door or rear vent.

E. The chamber will only control temperature and humidity within the specified range:
   1. Temperature Range: 40° Celsius to 100° Celsius
   2. Humidity Range: 60 to 80% Relative Humidity (of specified temperature range)

F. If the low water level alarm light is on, the chamber will not control humidity.

G. The timer only sounds for three seconds.

H. The physical size of the inside of the chamber is small. Large items may not fit in the chamber and an iron may need to be used to accelerate the development of prints.

**7 Maintenance**

1. Clean interior chamber (as needed)
2. Check drains for blockage (as needed)
3. See Maintenance Section, Caron Fingerprint Development Chamber, Operations Manual, page 14, for further information (as needed).

**8 Literature and Supporting Documentation**

Caron 6105 Fingerprint Development Chamber Operations Manual. 6105I001_revD.doc. 04-04-08.
# Standard Operating Procedures

**Latent Prints**

**Subject: Caron 6105 Fingerprint Development Chamber**

## Revision History

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Advisory Board 06/12/2012 |
| 02        | 03/18/2016     | Minor Revision – Section 6  
Advisory Board 09/16/2015 |
| 03        | 11/20/2017     | Major Revision – Sections 2 and 4 |
| 04        | 05/09/2019     | Revision – Section 5            |
COHERENT TRACER

1 Scope

The Coherent TracER is used in the examination of latent prints after treatment with fluorescent dye stains and powders. Luminescence of latent prints may also occur without the use of chemical processing techniques and may be viewed with the Coherent TracER. The Coherent TracER is an air cooled optically-pumped semiconductor (OPS) laser which emits 532 nm radiation with adjustable output from 0 to 6.4 watts.

2 Related Documents

Powder Processing (LP-02-02)
Magnetic Powder Processing (LP-02-03)
DFO (1,8-Diazafluoren-9-one) Processing (LP-02-06)
Rhodamine 6G Fluorescent Dye Processing (LP-02-09)
RAM Fluorescent Dye Processing (LP-02-10)
Fluorescent Gentian Violet Processing (LP-02-12)
IND (1,2-Indanedione) Processing (LP-02-17)
Acid Yellow 7 (AY) Processing (LP-02-19)

3 Safety

A. Avoid eye or prolonged skin exposure to direct or scattered radiation.

B. Always wear proper eye protection (laser safety glasses) when operating the TracER. Direct eye contact with the output beam can cause serious eye damage and possible blindness. Do not look directly into the beam even with proper eye protection.

C. User should monitor the aim of the hand piece.

D. Exercise caution when examining reflective surfaces to avoid the reflection of the laser light into the eyes.

E. Exercise caution when using solvents in the area of the laser.

F. Do not excessively bend or pull the fiber light umbilical cable (excessive tight bends less than 15 cm radius can damage and possibly ignite the fiber).

4 Equipment, Materials, and Reagents

• Coherent TracER

• Personal protective equipment

5 Standards and Controls

After initial set up and following any repairs, an appropriate chemically treated test print is used as a performance check to determine if the light source is operating as expected. All maintenance and performance checks on the light source are documented on the Equipment Log (LAB-405).
6 Instructions

A. Turn On, Front Panel Control
   1. Verify the LASER ON/OFF key switch is in the off position.
   2. Turn the POWER ON/OFF switch on the front panel of the power supply to the on position.
   3. Ensure the hand piece LASER CONTROL is selected to “F.P.” for front panel control and turn power adjust knob fully counter clockwise.
   4. Ensure the hand piece is pointed at an intended target and turn the LASER ON/OFF keyswitch to the on position. After 5 seconds the shutter will open and you will hear a click.
   5. Using the hand piece trigger, press the trigger to emit the requested laser emission.
   6. The front panel displays zero until there is actual energy. Set the front panel display to the desired output power using the front panel POWER ADJUST knob.

B. Turn On, Hand Piece Control
   1. Verify the LASER ON/OFF key switch is in the off position.
   2. Turn the POWER ON/OFF switch on the front panel of the power supply to the on position.
   3. Ensure the hand piece LASER CONTROL is selected to “H.P.” for hand piece control.
   4. On the hand piece, select the preset HI or LOW power option.
   5. Ensure the hand piece is pointed at an intended target and turn the LASER ON/OFF keyswitch to the on position. After 20 seconds the shutter will open and you will hear a click. (If the hand piece trigger is enabled, the system will emit laser energy within 5 seconds after the LASER ON/OFF key switch is turned to the on position.)
   6. Using the hand piece trigger, press the trigger to emit the requested laser emission.

C. Turn Off (Whether utilizing front panel or hand piece control)
   1. Ensure that the trigger is set to off position so that no laser light is emitting from the hand piece.
   2. Set the LASER ON/OFF key switch to the off position. The key can be removed to prevent accidental turn on.
   3. Set the POWER ON/OFF switch to the off position. The AC power cord or battery module can be detached from the system to prevent accidental turn on.

7 Limitations

A. Fixed wavelength.
B. In order for internal fans to function efficiently, a 10 cm (4 in.) clearance should be observed on both the fan inlet and exhaust ports.

C. Due to the battery management system, only the internal fan will be operational during the first 30 seconds from an off to a POWER ON state.

D. Be mindful of the heat given off from the LASER when viewing fragile evidence such as black tar heroin and plastic trash bags.

8 Maintenance


9 Literature and Supporting Documentation

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                          | Advisory Board 06/12/2012       |
| 02        | 11/18/2013     | Minor Revision – Scope         |
| 03        | 11/20/2017     | Major Revision – Sections 2, 4 and 7  |
| 04        | 05/09/2019     | Revision – Section 5           |
FISHER HAMILTON FORENSICS CABINET

1 Scope
The Fisher Hamilton Forensics Cabinets are utilized for Cyanoacrylate Ester (Super Glue) Processing of physical evidence. Each Forensics Cabinet provides ducted fuming chambers to provide protection for laboratory personnel from dangerous fumes and odors generated during the treatment of evidentiary materials.

2 Related Documents
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)

3 Safety
Observe standard laboratory safety practices.
Use caution when opening and closing the air-flow damper. Electrical cords pass through for routing heating apparatus for each chamber.
Hydrogen cyanide gas is produced when heated above 400° F.
The flash point for HOT STUFF – Original (Red Label) is 176° F to 200° F.

4 Equipment, Materials, and Reagents
Fisher Hamilton Forensics Cabinet
Personal protective equipment
Aluminum weigh dish
Cyanoacrylate Ester (Super Glue)
Heating apparatus
Hanging rods and hooks

5 Standards and Controls
Place a test print within the chamber during fuming and observe periodically to ensure equipment is operating as intended and for proper exposure of evidence.

6 Instructions
1. Open air-flow damper in chamber before access to allow purging of chamber and to aid in opening door to chamber.
2. Turn on heating apparatus and light.
3. Insert evidence into a clean chamber.
4. Place a test print within the chamber.
5. Place a small container of steaming water into the chamber, introducing humidity as an accelerant.
6. Close the door to chamber and close air-flow damper allowing heat and humidity to build.
7. Open the door and place an appropriate amount of Cyanoacrylate Ester in aluminum weigh dish on pre-heated heating apparatus. Close door to chamber.
8. After evidence is properly exposed, turn off light and heating apparatus and open air-flow damper to evacuate the chamber with the door closed for approximately 5 minutes prior to removing evidence.

9. Air-flow dampers should be closed when not in use.

7 Limitations

Fuming times may vary accordingly with size of chamber, condition and surface of substrate, relative humidity, and heating apparatus used.

Large items may not fit in the chamber.

Each chamber includes a vapor-proof incandescent light. Do not use bulbs in excess of 100 Watts.

Air flow should be tested as needed.

Screens of mesh/fabric may be placed in front of exhaust vent to prevent loss of small evidentiary materials.

8 Maintenance

Clean glass and chamber interiors as needed. Laminate clad interior surfaces and glass door panels may be cleaned with solvents as recommended by developing agent manufacturer. Avoid solvent contact on window glazing and vent port grommets.

Replace lamps by unscrewing interior glass globe from lamp housing as needed.

Wipe down exterior spills as soon as possible.

Verify proper airflow volumes as needed using airflow meter.

   A. Minimum Air Flow - 13 CFM (Bench-top Unit 950P200).
   B. Minimum Air Flow - 31 CFM (Full Height Unit 950P201).

Replace ‘v’-seal door gaskets as necessary.

Lubricate dampers as required for smooth operation.

Periodically inspect electrical cords for signs of wear at points of contact with air flow damper.

9 Literature and Supporting Documentation


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Minor revision - Title and Sections 1, 2  
Advisory Board 06/12/2012 |
| 02        | 11/20/2017     | Major Revision – Sections 2, 4, 5 and 6  
Minor Revision – Sections 3, 7, and 8 |
AIR SCIENCE FUMING CHAMBER

1  Scope
Instructions for the operation of the Air Science Safefume 72XL Cyanoacrylate Fuming Chamber used for the development of latent prints. The Safefume 72XL Cyanoacrylate Fuming Chamber protects personnel from the hazardous fumes generated from Cyanoacrylate. The Safefume automates the Cyanoacrylate Ester (Super Glue) Processing (LP-02-08) by controlling and monitoring the hotplate, humidity, door lock, internal circulation fan, and purge cycle. The touch control also displays the cycle time, lights, and filter condition.

2  Related Documents
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)

3  Safety
Observe standard laboratory safety practices. Wear proper protective equipment when processing items: lab coat, gloves, and safety glasses (goggles).

Do not attempt to open door until purge cycle is complete.

The hot plate inside the chamber is capable of reaching temperatures that could result in burns.

Disconnect power supply before removing filter access cover, or before attempting inspection and repairs to the chamber.

Dirty filters may contain dangerous materials. The use of a respirator is advised for persons removing filters.

Caution while replacing compact fluorescent lamps installed in chamber.

4  Equipment, Materials, and Reagents
Personal Protective Equipment
Air Science Safefume 72XL Cyanoacrylate Fuming Chamber

Hot plate
Circulating fan
Humidifier
Hanging rods, hooks, and shelves
Filters
Aluminum dish

Cyanoacrylate Ester (Super Glue)

5  Standards and Controls
Place a control test print on a non-porous substrate and place inside of fuming chamber. The instrument will produce positive results if prints are developed. Date and initial the log if the control performs satisfactorily and indicate the results.
6 Instructions

6.1 Operation

1. Turn power on.
2. Check settings (see 6.2 Initial Setup). It is recommended that the relative humidity (RH) set point be adjusted to 45%. This will allow the processing time cycle to begin within approximately five minutes of starting the process. The RH set point may be adjusted to 25%, 45%, 55%, 65%, and 80%, as needed.
3. Open chamber door and place items to be processed inside chamber either by suspending on hanging rods or shelves or standing on shelves or on chamber walls so all areas are exposed to fumes.
4. Place control test print within chamber.
5. Check water level in humidifier. If low, add distilled or deionized water.
6. Place desired amount of Cyanoacrylate Ester (Super Glue) in an aluminum dish and put the dish on the hot plate. (Do not put Cyanoacrylate directly on the hotplate.)
7. Close chamber door.
8. Press start. (The fuming run time will begin after the set point humidity level is reached). A flashlight may be used to monitor the control test print and view the processing of the evidence from outside the chamber.
9. At any time, the purge cycle can be activated to evacuate fumes from the chamber by pressing stop. Otherwise, at the end of the cycle the chamber will automatically purge itself. The purge cycle takes 5 minutes.
10. When cycle is complete, an alarm will sound until doors are opened.
11. Open chamber door.
12. Check control test print. If test print(s) developed, proceed to step 13. If test print(s) did not develop, repeat steps 3 through 10.
13. Document the batch date, set point RH, and result of the control test print in a log for each use.
14. Remove items.

6.2 Initial Setup

1. Set humidity level to 80% relative humidity (default setting).
2. Set fuming run time to 15 minutes (default setting).

7 Limitations

Fuming times may vary accordingly with the condition and surface of substrate.

Fuming cycle will not start unless door is closed and until the humidity reaches the set point.

Low amounts of Cyanoacrylate Ester (Super Glue) added to the dish may not allow the heating element to provide fumes for the entire 15 minute heating cycle.

The unit will only maintain the set humidity level to within +/- 5% variance.
Physical volume of chamber is fixed. Extremely large items may not fit in the chamber or may not fit through the chamber door.

Circulation fan may cause evidentiary material to move around while fan is on. Evidentiary material should be secured on hanging rods or on shelves.

The RH inside the chamber may be higher than the selected RH set point selected. This value is simply the set point at which the processing time cycle will begin.

The commercially purchased humidifier will need to be monitored with use for the ability to produce and increase the humidity in the chamber.

The Cyanoacrylate Ester (Super Glue) developed print is partially fixed, but excessive rubbing or handling may diminish print.

8 Maintenance

Document maintenance performed in the Maintenance Log.

Clean glass and interior chamber (as needed).

General Cleaning and Inspection: Recommended, every 6 months.

Filter change-out and complete inspection & calibration: Recommended, every 12 months.

General Cleaning: Wipe down the unit with only soapy water. Upon first use, the application of Rain-X to the interior glass doors will help to maintain a cleaner inner chamber. Wipe down the inner chamber occasionally and reapply as necessary.

Replace humidifier wick/filter as needed.

Filter Change Out: Pre-filters (main pre-filter and circulation fan pre-filter) and main carbon filter.

A. Follow recommended service schedule.

B. Alarm will alert the operator when the filter needs changing.

Humidifier: Add distilled or deionized water as needed. Change every few uses.

Replace compact fluorescent lamps as needed.

9 Literature and Supporting Documentation


Air Science Safefume Product PDF Download.

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| 02        | 12/19/2012     | Minor Revision – Section 6.1   |
| 03        | 06/26/2017     | Major Revision – Sections 6, 7, 8 and 9  
Minor Revision – Section 4 |
| 04        | 11/20/2017     | Major Revision – Sections 2, 6 and 8  
Minor Revision – Section 5 |
BENCHTOP ROCKER

1 Scope
The benchtop rocker allows for the gentle agitation of evidentiary items suspended in solutions.

2 Related Documents
Oil Red O (ORO) Processing (LP-02-18)

3 Safety
A. Observe standard laboratory safety practices. Wear proper personal protective equipment.
B. Do not immerse the rocker in water or pour liquids over the unit as electrical shock may occur.
C. To avoid splashing of samples, the rocker should be started with the speed dial at the lowest position and gradually turned up to the desired speed.
D. Disconnect power supply before removing/adjusting platform tilt.

4 Equipment, Materials, and Reagents
- Benchtop rocker
- Personal protective equipment

5 Standards and Controls
None

6 Instructions

6.1 Operation
1. Place rocker on a level, stable surface near a grounded electrical outlet. Allow at least 3” clearance on all sides.
2. Operate in timed or continuous mode.
3. Turn the speed dial to desired setting.
4. Turn the timer knob clockwise to the desired time for (timed mode), or turn the timer knob counterclockwise to the hold position (for continuous mode)
5. Turn the timer knob to the zero position to turn off.

7 Maintenance
1. Document maintenance performed in the maintenance log.
2. Wipe down the surface after each use.
3. The rod bearing should be lubricated with oil as needed.

8 Literature and Supporting Documentation
Operating Instructions – specific to laboratory.
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Advisory Board 06/12/2012 |
| 02        | 12/19/2012     | Minor Revision – Section 1    |
| 03        | 01/01/2015     | Minor Revision – Sections 1, 3, 4, and 9  
Advisory Board recommendations |
| 04        | 03/18/2016     | Minor Revision – Sections 1, 4, and 5  
Advisory Board 09/16/2015 |
| 05        | 11/20/2017     | Major Revision – Sections 2, 3, and 4  
Minor Revision – Section 7 |
| 06        | 05/09/2019     | Revision – Sections 1 and 2    |
SPEX CRIMESCOPE

1 Scope
The SPEX CrimeScope CS-16-500-15F, later referred to as CrimeScope, is a light source used for enhancing observation and photography of latent print evidence. The CrimeScope uses a 500 Watt xenon arc lamp and consists of 15 filter wheel wavelength selections. The CrimeScope has three defined uses within the latent print discipline: fluorescence, absorption, and as an intense white light source.

2 Related Documents
Powder Processing (LP-02-02)
Magnetic Powder Processing (LP-02-03)
Ninhydrin Processing (LP-02-05)
DFO (1,8-Diazafluoren-9-one) Processing (LP-02-06)
Cyanoacrylate Ester (Super Glue) Processing (LP-02-08)
Rhodamine 6G Fluorescent Dye Processing (LP-02-09)
RAM Fluorescent Dye Processing (LP-02-10)
Gentian Violet Processing (LP-02-11)
Fluorescent Gentian Violet Processing (LP-02-12)
Sticky Side Powder Processing (LP-02-13)
Amido Black Processing (LP-02-14)
IND (1,2-Indanedione) Processing (LP-02-17)
Oil Red O (ORO) Processing (LP-02-18)
Acid Yellow 7 (AY7) Processing (LP-02-19)

3 Safety
A. Light source emits high-intensity UV, VIS (visible), and IR light. Exposure to these types of radiation, even reflected or diffused, can result in serious, and sometimes irreversible, eye and skin injuries.
B. Make sure to not block the intake and exhaust fans on the rear panel.
C. If the lamp fails to turn on, or it bursts, immediately leave the room. Allow at least 10 minutes before returning to the work area.
D. Set intensity control at fully clockwise position (0% intensity) when not in use, when changing wavelengths, or when changing goggles.
E. Never aim the light guide at anyone.
F. Do not look directly into the light guide or optical ports.
G. Always wear protective goggles when operating the CrimeScope based on the following minimum manufacturer recommendations:
   350-400 – clear UV or yellow
400-445 – yellow
445-515 – orange
515-575 – red
000 – clear UV at minimum, but orange is recommended for eye comfort
600-670 – clear UV

H. Skin protective clothing and gloves when using the light source are recommended.
I. Do not leave equipment on and unattended.
J. Excessive bending, over-bending, kinking of the light guide can cause damage to the light guide.
K. Explosion hazard: Do not operate in an explosive atmosphere, in the presence of flammable gases or fumes.
L. Risk of electric shock: Do not remove the instrument cover as this should only be done by qualified service personnel.
M. Fire hazard: Do not leave open the IR side-port, and do not leave the IR fiber guide attached when not in use.
N. Fire hazard: Caution with the interaction of the light with various substrates and chemical reagents.

4 Equipment, Materials, and Reagents

- CrimeScope
- Personal protective equipment

5 Standards, Controls, and Calibration

After initial set up and following any repairs, an appropriate chemically treated test print is used as a performance check to determine if the light source is operating as expected. All maintenance and performance checks on the light source are documented on the Equipment Log (LAB-405).

6 Instructions

6.1 Setup:
1. Remove from carry case, verify that both power switches are in off position, and set the light intensity to minimum intensity (fully clockwise).
2. Install power cord.
3. Remove front cap and connect the UV-VIS liquid light guide and remote controller cable.
4. Aim the light guide towards the ground away from users/viewers.

6.2 Start-up:
1. Set the back switch to the On position then turn the front switch to the On position.
2. Slowly open the intensity control shutter. Rotate the collimator for wide angle or focused spot-size. The wavelength is visible on the front of the instrument.
6.3 Use:
1. Operate light source in a dark to semi-darkened room to view fluorescent prints.
2. Choose an appropriate wavelength by selecting up or down on the front of the instrument or using the buttons on the UV-VIS liquid light guide remote control.
3. Adjust the Downward Shift for filter fine tuning as appropriate for the subject. The Downward Shift range is from 0-20.
4. Change protective eye wear according to the filter wheel wavelength selected.
5. Upon selection of optimum filter wheel wavelength, apply appropriate camera lens filter: yellow15, orange, or red23A. Filter stacking of like filters is permissible.
6. Document on the latent print worksheet filter wheel wavelength, Downward Shift (if other than 0), and camera lens filter used when photographing latent print evidence.

6.4 Shut–down:
1. Ensure the intensity control is turned fully clockwise.
2. Set the front switch to the Off position, and allow the unit to cool down for a minimum of 5 minutes.
3. Set the back switch to the Off position.
4. Remove and coil up the UV-VIS liquid light guide. (Recommended in order to maintain clean optics on UV-VIS liquid light guide)

7 Maintenance
1. Normal maintenance includes keeping the equipment clean.

8 Troubleshooting

9 Limitations
A. The CrimeScope sits on four rubber feet that will wobble if not placed on flat stable surface. Utilize the flexible arm to secure liquid light guide to control aim and movement of radiation.
B. Intensity of CrimeScope is lower than Coherent TracER.
C. Fifteen filter wheel wavelength selections are available and designated by the manufacturer as the center wavelength ± (margin of error) 8 as the following: 350, 415, 445, 455, 475, CSS, 495, 515, 535, 555, 575, 600, 630, 670, and 000.
D. Downward Shift adjustments allow for an estimate of the wavelength applied, and the actual shift in the center wavelength is not displayed. The actual shift in nm is approximately 2/3 of the display value.
E. The intense high energy light source may cause objects such as thin plastics that are in the light energy path to heat, melt, or disfigure.
F. Evaluation of filter wheel wavelength selections and camera lens filter combinations are subjective due to the amount of fluorescence observed and/or substrate background conditions. The “best” considered filter wheel wavelength selection and camera lens filter combination may vary from user to user. Different filter wheel wavelength and camera lens filter combinations may be applied and used.

10 Literature and/or Supporting Documentation

SPEX Forensics. FLS-RUVIS Applications: Wavelengths and Uses. SPEX Forensics Poster.
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AIR SCIENCE FINGERPRINT DEVELOPMENT CHAMBER

1 Scope
Instructions for the operation of the Air Science SafeDevelop Fingerprint Development Chamber used for accelerating the development of latent prints after processing with IND, DFO, and Ninhydrin.

2 Related Documents
Ninhydrin Processing (LP-02-05)
DFO (1,8-Diazafluoren-9-one) Processing (LP-02-06)
IND (1,2-Indanedione) Processing (LP-02-17)

3 Safety
A. The unit is capable of reaching temperatures that could result in burns. Always wear protective clothing when accessing the unit. Use caution when opening the outer door.
B. Use eye protection, gloves, and aprons if exposure to hazardous materials could occur.
C. When performing maintenance: before removing top/back panel, disconnect all power.
D. Do not put more than 5 lbs on top of unit.
E. To immediately turn off temperature controller, humidity controller, digital timer, and internal electronic components, press emergency stop. Note: to turn power back to electronic components, pull on emergency stop button.
F. It is recommended to press the test button of the GFCI if the unit was not used for a while.

4 Equipment, Materials, and Reagents
- Air Science SafeDevelop Fingerprint Development Chamber
- Personal protective equipment

5 Standards, Controls, and Calibration
After initial set up and following any repairs, an appropriate chemically treated test print is used as a performance check to determine if the humidity chamber is operating as expected. All maintenance and performance checks on the humidity chamber are documented on the Equipment Log (LAB-405).

6 Instructions
A. Water connections
1. Plumb the water drains connection to a facility drain. There are 2 drain ports located at the bottom of back side of the chamber. Make sure that both drain ports are connected to fittings with tubes.
2. Mount the universal carboy holder on the side of the unit. Connect tubing with fitting to carboy and fill carboy and install the other end of tube containing fitting to top inlet port located in the back of the unit. Use tap water.
B. Start up
1. Be sure the water connections are properly made and the exhaust vent is properly closed.
2. Turn on unit by pressing power switch.
3. The temperature and timer displays will illuminate. Air should be gently circulating.

C. Temperature controller
1. Change the Temperature Set Point. Use the up and down arrow buttons to obtain the desired temperature set point.
2. The temperature is displayed in degrees Celsius (°C).
   a) Ninhydrin: 80°C
   b) DFO: 100°C
   c) IND: 100°C

D. Humidity controller
1. Enable humidity control by turning the profile select switch to Ninhydrin. This fills the steam generator with water.
   a) Ninhydrin: 70%
   b) IND: 60%
2. Disable humidity control by turning the profile select switch to DFO. This will drain the steam generator.
   a) DFO: disabled

E. Countdown timer controller
1. Set total countdown time to desired value using the four up and down arrow buttons.
   a) Ninhydrin: 5 minutes
   b) DFO: 10 minutes
   c) IND: 10 minutes
2. Open chamber door and place evidence inside chamber on shelf or attach evidence with evidence clips on hanging bars.
3. Press the start button.
4. When the time remaining reaches 0:00, the alarm will buzz.
5. Press the reset button at any time to stop the countdown.
6. Open chamber door and remove evidence.
7. Close chamber door.
8. Press the reset button to turn off the buzzer, and the time remaining will reset the total countdown time.
7 Limitations

A. Requires tap water. Distilled water will cause the Low Water Level Alarm light to stay on and will not control humidity.

B. When first turning on, the chamber takes time to reach desired temperature and humidity.

C. Water carboy empties very quickly/chamber provides a lot of output of water. Have to refill carboy often.

D. Humidity quickly lowers below desired setting when door is opened and takes time to reach desired setting.

E. The chamber will only control temperature and humidity within a specified range:
   1. Temperature Range: 40°C to 100°C
   2. Humidity Range: 40 to 65% RH (temperature range 40°C to 80°C)

F. The chamber must be located in a dry, clean, and level area. Allow a 2 inch clearance from the back of the chamber for proper air circulation.

G. Rubber stopper should be installed on the exhaust port on the backside of the chamber.

H. The physical size of the inside of the chamber is small. Large items may not fit in the chamber and an iron may need to be used to accelerate the development of prints.

8 Maintenance

1. Normal maintenance includes keeping the equipment clean

2. Refill the water carboy with tap water (as needed)

3. Check drains for blockage (as needed)

9 Brief Troubleshooting

A. Unit won’t turn on
   1. Is the unit plugged in?
   2. Is the Emergency Stop button pressed?

B. Unit won’t reach temperature set point
   1. Is the set point within the unit specification range?
   2. Is the rear vent closed?
   3. Is the door closed and latched?
   4. Can air flow freely throughout the chamber? Inhibited air flow can trip the over temperature safety device. Remove airflow obstructions and let stabilize for 30 minutes.

C. Unit won’t reach humidity set point
   1. Is the rear vent closed?
   2. Is the door closed and latched?
   3. Is the low water level alarm light on?
4. Is there adequate water supply?
5. Can air flow freely throughout the chamber?
6. Is the humidity set point within the unit specification range?

D. Low water alarm light stays lit
   1. Is there adequate water being supplied to the chamber?
   2. Are there any air traps in the line?
   3. Are you using Tap water? (Distilled water will cause the light to stay lit)
   4. If using a carboy or other reservoir, is there a weep hole to allow free flow?
   5. Make sure that supply water tube coming from carboy is not bent.

10 Literature and/or Supporting Documentation

Air Science Model SD-34S Fingerprint Development Chamber User Manual
## Revision History

<table>
<thead>
<tr>
<th>Version #</th>
<th>Effective Date</th>
<th>Brief Description of Change(s)</th>
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<tbody>
<tr>
<td>00</td>
<td>05/09/2019</td>
<td>Original Issue</td>
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## Latent Print Worksheet

**LAB-LP-01 Rev.09 (05/2019) p.1 Issued by: QAC**

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<th>Analysis</th>
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<th>FBI</th>
<th>DHS</th>
<th>DoD</th>
<th>Comparison Results</th>
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**Notes:**

**Evidence Review**

**Latent Review**

**Verification**

**Case #**

**Examiner**

**Page** 1 of 1

**Dates** 5/9/2019

**AFIS Hit**  □  **FBI Hit**  □  **DHS Hit**  □  **DoD Hit**  □  **Additional Evidence**
## Latent Print Comparison Worksheet

**LAB-LP-04 Rev.05 (05/2019) p.1 Issued by: QAC**

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### Notes:

- Evidence Review: _______________________
- Case #: _______________________
- Latent Review: _______________________
- Examiner: _______________________
- Verification: _______________________
- Page: 1 of 1
- Dates: 5/9/2019
- Additional Evidence: □

**AFIS Hit □ FBI Hit □ DHS Hit □ DoD Hit □ Additional Evidence**
**CASE RECORD**

- Evidence submitted for LP has been examined or reason provided why the evidence was not examined
- Information from Laboratory Information Sheets (if applicable) was accurately transcribed to worksheet
- Proper examination of evidence, proper sequence of processing techniques, and documentation of observations
- All activities are dated in the case record and the date or range of dates is documented in LIMS
- Controls are properly documented on the worksheet
- An accurate CCH search was performed and exemplars used match information provided on the submission form, at a minimum, name, DOB, and SID (watch for alias names and alias DOBs). Refer to “Guidelines for DPS SID Search”
- Names in the report are either listed on the submission form or identified as the result of an AFIS search.
- Proper use of abbreviations (see CLS Manual, LP SOP, and AFIS SOP for approved abbreviations lists, others that are not common must be defined)
- All strikethroughs and additions have been initialed, and dated if made after the date or range of dates of the record
- All corrected dates are dated if different than the date when the correction is made
- All verifications and any reviews have been properly documented on worksheet by reporting examiner and verifier(s)/reviewer(s)
- All required verification(s) of conclusions have been performed
- All relevant reviews have been documented in LIMS
- Latent prints searched and/or stored in various databases are indicated on the worksheet (as applicable)
- Any retained submitted exemplars have been properly labeled and their descriptions on the worksheet and report match the information on the exemplars
- Contact sheet has been printed for any submitted digital images and is properly labeled (as applicable)
- Foray contact sheet contains all preserved original and processed images, they are authenticated, and all information for the offense, date of offense, etc., has been correctly entered in Foray (as applicable) [Note: images migrated from prior system will show both original and processed images as “Original”]
- All relevant testing methods have been selected in LIMS
- Deviations to the testing methods have been documented in LIMS (as applicable)
- All DUI boxes have been accurately entered in LIMS
- Requestor Notes have been printed and initialed, as applicable [Other Regional Crime Laboratories only]

**LP ENVELOPE (if applicable)**

- Information on the LP Envelope has been filled out correctly
- “ID” is indicated where names of individual(s) identified are listed on the LP Envelope
- Contents have been properly initialed by the reporting examiner and any reviewer(s) or verifier(s) (this includes preserved latent print evidence and exemplars)
- CJIS printouts (CCH printouts and archive exemplars) have been marked “For Official Use Only”
- All relevant preserved latent print evidence and exemplars are properly described and documented
- Asset IDs/file names on composites and worksheet match those on the contact sheet
- Analysis has been documented
- Composites include:
  - Laboratory case number
  - Initials
# TEXAS DEPARTMENT OF PUBLIC SAFETY
CRIME LABORATORY

## Latent Print Technical Review Checklist

**LAB-LP-05 Rev.00 (05/2019) p.2 Issued by: QAC**

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<thead>
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<td>☐ File name or Foray asset ID of image represented</td>
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<td>☐ Date printed</td>
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<td>☐ Scale (size ratio)</td>
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<td>☐ Any additional information the reporting FS chooses to include must be reviewed for accuracy</td>
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</table>

- Photo tags in images captured in the laboratory include:
  - ☐ Laboratory case number
  - ☐ Initials of reporting analyst (and photographer if photographed by another person)
  - ☐ Date preserved
  - ☐ LIMS item number
  - ☐ If the above are not visible in the photo tag, they must be included in any composites printed of the image

- Initials are present on any Latent AFIS Layout Sheets (LAB-AF-01)  
  - [Austin Crime Laboratory only]

<table>
<thead>
<tr>
<th><strong>DOCUMENTATION PHOTOS</strong></th>
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<tbody>
<tr>
<td>☐ Documentation photos are stored in the case record as necessary (LIMS Imaging Module, case folder, or Latent Print Envelope) and correctly labeled with, at a minimum:</td>
</tr>
</tbody>
</table>
  - ☐ Laboratory case number
  - ☐ Initials
  - ☐ Date photograph is taken |