Section E ATD (Alternative Tape Developer) Subsection 3

Name of Procedure:

ATD (Alternative Tape Developer)

Suggested Uses:

ATD is a method to detect latent impressions on the adhesive side of tapes. This process can be used to develop impressions on a variety of tapes including duct tape, masking tape, clear plastic tape, plastic surgical tape and black electrical tapes.

Equipment Needed to Perform Procedures:

A - One (1) camel hair brush

B - Two (2) dropper bottles

C - One (1) mixing spoon

D - One (1) small mixing tray or boat

E - Camera (35mm, 2 1/4, MP-4, CU5, TC III)

H - Fume hoods

I - Rubber gloves

J - Forceps

Chemicals Needed For Preparation of Chemical Solution(s):

A - 0.5 g of black powder (gray and silver powders and fluorescent greenwop or redwop powders may also be utilized in this procedure).

B - Twenty (20) drops of Liqui-Nox.

C - A sufficient amount of distilled water for mixture and rinse.

Formula/Directions for Preparation of Chemical Solution(s):

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For duct tape, masking tape, clear plastic tape, plastic surgical tape and other light colored adhesive surfaces:

1. Place 0.5 grams of black powder in the mixing tray or boat.

2. Place twenty (20) drops of Liqui-Nox and twenty (20) drops of distilled water in mixing container.

3. Using the mixing spoon, stir the three (3) parts together until a solution is developed which has the consistency of shaving creme with small bubbles.

Black electrical tapes and other dark in color adhesive surfaces:

1. Follow the above procedures for tapes and let stand until needed.

2. Place 0.5 grams of one of the following powders in a mixing tray or boat (gray, silver, dual use, fluorescent greenwop or redwop powders).

3. Place twenty (20) drops of Liqui-Nox and twenty (20) drops of distilled water in mixing container.

4. Using the mixing spoon, stir the three (3) parts together until a solution is developed which has the consistency of shaving creme with small bubbles.

Note: The powders used in this process can be substituted as needed depending on the type of tape being processed; however, each type of powder must be mixed in a separate tray.

Note: The above mixtures may also be mixed prior to use and with additional drops of the Liqui-Nox and distilled water can be easily restored to the original consistency.

Processing Procedures for Application to Item(s) of Evidence:

For duct tape, masking tape, clear plastic tape, plastic surgical tape and other light colored adhesive surfaces:

1. Utilizing the camel hair brush, brush the paste onto the adhesive side of the tape.

2. The solution should remain on the tape for approximately ten to fifteen seconds.

3. The tape should be placed in the rinse tray of distilled water, agitated to remove the excess dye and allowed to air dry. The tape may be placed under running tap water; however, the rinse method is recommended.

Black electrical tapes and other dark in color adhesive surfaces:

1. Follow the same procedure as above for lighter colored tapes and adhesive surfaces to the tape.

2. Apply a second mixture of ATD with one of the following powders (gray, silver, dual use, fluorescent greenwop or redwop powders).

3. Utilizing the camel hair brush, brush the paste onto the adhesive side of the tape.

4. The solution should remain on the tape for approximately ten (10) to fifteen (15) seconds.

5. The tape should be placed in the rinse tray of distilled water, agitated to remove the excess dye and allowed to air dry. The tape may be placed under running tap water; however, the rinse method is recommended.

Note: The tape after this procedure should be viewed with the laser and/or an alternate light source to detect additional latent impressions.

Note: The developed impressions may be lifted directly from the surface of the tape; however, this should be attempted while the tape is still wet to avoid the adhesives from sticking together.

Steps to Preserve Developed Impressions:

The most appropriate methods to preserve developed impressions is through photography, using the proper techniques (See Photographic Equipment/Procedures) and/or electronically recording the impressions (See Image Processing). Developed impressions may also be lifted from the adhesive side of the tape while they are still wet; however, care should be taken when attempting this procedure as the adhesive from the tape may also be lifted. This method may alter the contrast of the developed impression.

Safety Concerns:

Presently there are no major safety concerns associated with the usage of this technique. The

powder and chemical solutions should be handled and applied with protective gloves and eye protection. With all chemicals, improper use may cause some irritation when in contact with the eyes or skin and may be harmful if inhaled or ingested.

Storage and Location of Chemical Solutions:

The powders and Liqui-Nox should be stored in the appropriate kit and mixed as needed.

The mixing tray or boats and the camel hair brush should be thoroughly cleaned after use to avoid contamination and stored in the appropriate kit.

Shelf Life:

Powders - Indefinite.

Liqui-Nox - One (1) year.

Mixtures - Recommended for immediate use only; however, may be restored to original consistency with a few additional drops of Liqui-Nox and distilled water.

Other Information:

Both sides of the tape should also be examined during analysis as this procedure will often develop latent impressions on the non-adhesive side of the tape.

ATD may be used in conjunction with various processing techniques.