**MAPPING DUCT TAPE FOR THE PRESENCE OF SALIVA USING PHADEBAS® PRESS SHEETS**

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The identification of body fluids on items of evidence is an important and long standing function of forensic analysis. In addition to identifying one of the four forensic body fluids (blood, saliva, semen and urine), probative information can also be derived from the placement and location of body fluids on the questioned item, *i.e.,* mapping the location of the body fluid on the evidence. Here we demonstrate the use of the Phadebas® Press Test to 'map' the location of putative saliva left on duct tape, an often encountered, but difficult to handle, evidentiary item.

This work was begun in response to a case where the victim had alleged being gagged across the mouth with duct tape. DNA analyses performed on swabs taken from the adhesive layer (sticky side) of the duct tape were at best inconclusive, and we therefore sought additional probative results from the duct tape. We reasoned that if the duct tape was used as alleged, then determining the size, shape and position of deposited saliva could be informative as to veracity of the allegations, the lack of DNA-based results not withstanding.

Initial tests with mock evidence were used to develop methods for handling and mapping the duct tape. The use of Phadebas® Press Sheets was tested on cloth, paper and duct tape. Analysts were not informed as to location of putative saliva, *i.e.,* analysis of mock evidence was conducted blindly, as for evidentiary samples. Supplemental to the manufacturer's operating procedure, an experimental approach was used to develop a modified procedure for handling duct tape, 'mapping' the location of putative saliva, and importantly, removing the Phadebas® Press Sheets from the adhesive side of the tape after color development.

**A recommended procedure is provided:**

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### Materials

Phadebas® Press Sheets
Cotton fabric swatch
Laser copier quality paper
Duct tape pieces
Spray bottle containing dd$H_2O$
Minimum 4 kg weight or equivalent

### Modified Procedure:

Items to be tested were placed on a clean flat surface and dampened with ddH2O from a spray bottle. The testing area was covered with a sheet of Phadebas® paper cut to fit the item with blue reagent side of the paper in contact with the evidence. The Phadebas® paper was dampened with ddH2O to a degree that the paper remained damp during entire testing interval, but was not overly wet. A rough outline of the testing area was traced onto Phadebas® paper with a marker. Even pressure was applied to press the paper against the item – a plastic wrapped weight can be used.

The test was observed frequently during 40 minutes and positive reaction times were recorded. A positive reaction is defined as a distinct area of diffuse blue color on the non-reagent side of the Phadebas® paper. The paper was then carefully removed from the evidence - for successful removal from the adhesive side of duct tape, the Phadebas® paper must still be damp. Images and intensity of positive reactions were recorded using a digital camera and boundaries of visible blue reaction were marked on the paper and directly on the items. The Phadebas® paper was then allowed to dry in a protected environment. Positive areas on item and paper can be submitted for DNA analysis following manufacturer's test protocol. ⌘