

ML255 HiPer® SaliFind Kit

Kit Content:

Product Code	Material Provided	25 Tests
DS1889	Saliva Detection Paper-A4 Size	25 nos
DS1890	Colour Developing Stock Solution	15 ML
DS1891	Empty Spray Bottle	1 no

Introduction:

The HiPer® SaliFind kit is developed to rapidly identify and locate saliva traces. This method relies on detecting salivary enzymes through an enzymatic-chemical reaction. The presence of saliva can be visually assessed by observing a white color appearing against a purple background on the saliva detection paper. The test is user-friendly and can be performed within 20-25 minutes.

After blood, saliva is the most commonly found biological evidence at crime scenes. Its significance in forensic analysis extends to various aspects such as determining sex, establishing personal identity through DNA profiling, identifying ABO blood groups, discerning microbial signatures, detecting biomarkers, and even revealing lifestyle habits like smoking [1].

At crime scenes, saliva can be found in wet or dried form, but its detection is challenging due to its transparency nature. Our innovative saliva mapping method offers a valuable solution, even in localizing invisible saliva stains on suspected objects, offering significant benefits in forensic investigations.

The kit can effectively map saliva from a variety of surfaces, including fabric, metal, plastic, glass, tiles, and wood.

Stability and Storage:

The kit remains stable below 30°C and maintains its stability until the expiration date indicated on the packaging. After each use, ensure to store the unused saliva detection paper in the provided aluminum bag, securely sealed until its next use to maintain its stability.

Sensitivity:

The kit is capable of detecting saliva diluted up to 1:1000. It can also identify saliva stains up to one month old from various surfaces. If the collected sample is stored at a constant temperature and humidity, the kit may even detect stains that are several months old.

Specificity:

The kit does not show positive results with other body fluids such as blood, urine, and vaginal fluids. However, it may indicate very weak positive results with semen. Additionally, the presence of salivary enzymes in breast milk might contribute to positive results.

Please refer disclaimer Overleaf.

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Protocol:

Materials needed but not provided

- Measuring cylinder
- Plastic tray
- Distilled water
- Timer/stopwatch

Precautions

1. Wear gloves while handling saliva detection paper.
2. Saliva detection paper can be cut into pieces, if studying smaller objects.
3. Store the unused saliva detection paper in the provided ziplock bag and aluminum pouch sealed securely until its next use.
4. Working solution should be prepared freshly before conducting tests.
5. Fill the provided spray bottle with distilled/sterile water before initiating the test.
6. Avoid air bubbles beneath wet saliva detection paper as it may cause inconsistencies in coloration.
7. Do not freeze the kit components.

Preparation of working solution for saliva detection:

The working solution should be freshly prepared just before performing the test. For one A4-sized saliva detection paper, approximately 50 ml of the working solution is needed.

Preparation of working solution is as follow:

Add 0.5 ml of Colour Developing Stock Solution (DS1890) in 49.5ml of distilled water.

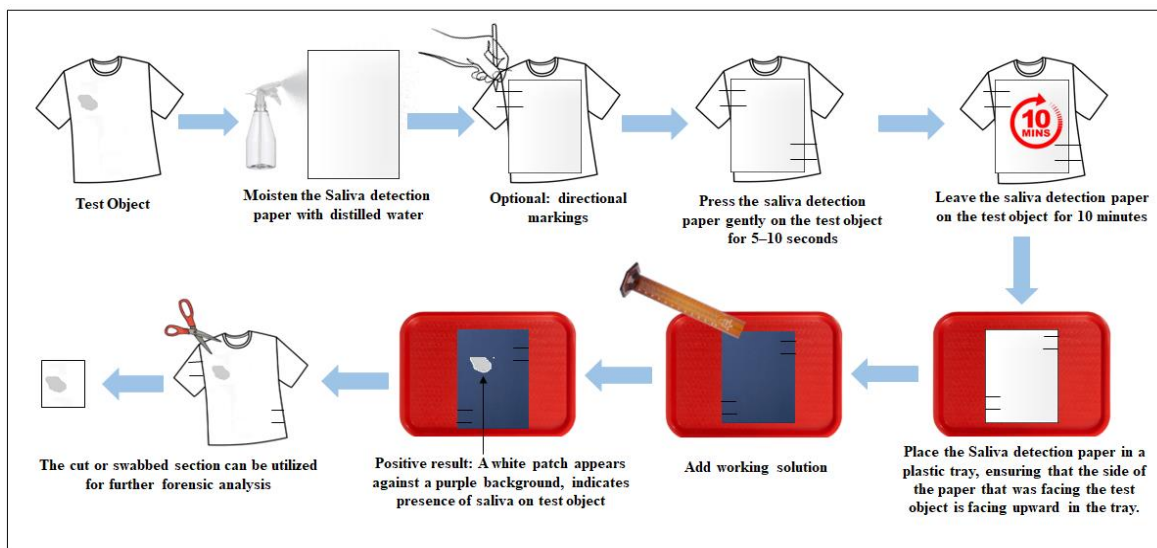


Fig 1. Schematic representation of saliva mapping

Protocol for mapping (locating) saliva residue on fabric or surfaces

1. Position the test object on a flat surface.
2. Remove the Saliva Detection Paper (DS1889) from the ziplock pouch. If the object to be tested is small, trim the detection paper to match the size of the object. Make sure that the trimmed saliva detection paper adequately covers the entire testing surface.
3. Moisten the Saliva Detection Paper (DS1889) by spraying distilled/sterile water.

4. *Optional:* If needed, to ensure accurate mapping, create simultaneously directional markings on the saliva detection paper and test object, such as vertical or horizontal lines, allowing easy tracing of the saliva location on test object once results are developed (Fig 1).
5. Place the moistened saliva detection paper either on the object to be tested or place the object onto the moistened paper. Apply gentle pressure with gloved hands for 5-10 seconds, then allow the saliva detection paper to remain in contact with the test object for 10 minutes.
6. Carefully remove the saliva detection paper from the test surface/object and place it in a plastic tray, ensuring that the side of the paper that was facing the test object is facing upward in the tray.
(Note: -Ensure there are no air bubbles underneath the paper to avoid any inconsistencies in coloration that may hinder result interpretation.)
7. Pour the prepared working solution onto the saliva detection paper in a single, continuous motion, ensuring that the entire surface of the paper is fully covered with the solution.
8. If saliva is present, a white spot will appear against the purple background within 10–20 seconds. However, it is recommended to wait 1 minute after adding the working solution to read the results accurately.
9. If needed, document it with a photo, as the coloration of the saliva detection paper tends to fade after around 25-30 minutes.
10. Further analysis: Using the markings made on test object and saliva detection paper, saliva-stained area can be located on the test object. If the test object is cloth, fabric, or paper, the region indicating saliva positivity can be cut out. Alternatively, if the test object is solid, positive area can be swabbed/wiped with a wet, cotton swab moistened with sterile water. The collected saliva sample, either cut piece or swabbed, can be used for further forensic analysis.

Internal quality control:

Positive control: Cut the small piece of saliva detection paper ($\approx 10\text{cm}^2$), apply a small drop of known saliva onto saliva detection paper, allow it to air dry for 15 minutes. Pour $\approx 1\text{ml}$ of freshly prepared working solution onto the paper, ensure that the entire surface of the paper is fully covered with the solution. Read the results within 1 minute.

Negative control: Follow the same procedure as for the positive control, but instead of using known saliva, use distilled water to create the negative control.

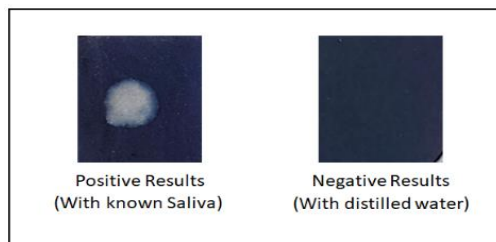


Fig. 2: Internal quality control

Result Interpretation:

Positive Result (Saliva Detected):

Indicator: White patch against a purple background on the saliva detection paper, often bordered by a bluish tint.

Note: The exact color and shape of the positive result may vary.

Negative Result (No Saliva Detected or Below Detection Limit):

Indicator: The saliva detection paper remains throughout purple, with no distinct white patch.

Note: The intensity of the purple color may vary.

Invalid Result:

Indicator: Known positive and/or negative control indicates an incorrect result.

Action Required: Repeat the test with a new saliva detection paper and fresh working solution. Ensure the entire paper is covered with the working solution, avoid air bubbles under the paper, and read the result within the specified time frame.

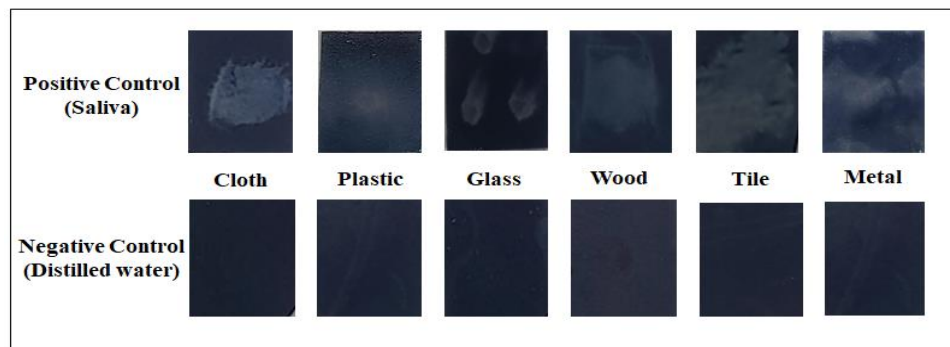








Fig 3. Saliva detection on various surfaces using Positive and Negative Controls

References:

1. Megha Upadhyay, Pankaj Shrivastava, Kapil Verma, Bhawana Joshi Recent advancements in identification and detection of saliva as forensic evidence: a review. Egyptian Journal of Forensic Sciences (2023) 13:17.
2. John SJ, Rajaji D, Jaleel D, Mohan A, Kadar N, Venugopal V. Application of Saliva in Forensics. Oral Maxillofac Pathol J 2018;9(2):85-87.

SYMBOLS USED ON LABELS

	Manufacturer		Batch code
	Date of manufacture (YYYY-MM)		Catalogue number (commercial product name”, commercial product code”)
	Use-by date (YYYY-MM)		Consult instructions for use



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