



STK® Sperm Tracker STK Spray DIRECTION FOR USE

Symbol definition:



Catalogue reference: **AXO-STK-SP10**



Batch number



Recommended storage temperatures



Do not use if packaging is damaged



Keep away from light



Single use



Expiry date



See User Guide



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Product purpose:

STK Spray from the STK® Sperm Tracker range is a presumptive test for the detection of human male semen.

STK Spray intend to be used indoor and outdoor, on floor, soil, hard surfaces like furniture, plastics, leather, metal, leaves, etc.

STK Spray must not be used on fabrics (clothes, beddings...).

For textile, we recommend instead to use STK Lab impregnated paper (Ref. AXO-STK-9240, AXO-STK-9210, AXO-STK-A3-20) to avoid contrast issue (false negative) when lighting with UV light.

STK Spray **MUST NOT** be sprayed directly on human skin.

Principle of the test:

STK spray is a vaporizable mixture that allows specific detection of male seminal fluid traces with the later objective of realizing DNA analysis of collected samples. **Reagents react specifically with Acid Phosphatase enzyme present in human seminal fluid.**

Presence of this enzyme on tested evidence react with STK Spray. Specific obtained stain can be visualized using a 365/366nm UV light with visible light filter.

STK Spray does not damage DNA. It does not alter potential DNA extraction and PCR amplification. STK Spray allows specific localization of the area where semen can be found on studied evidence.

Provided material:

Pouches of reagent powder. Each pouch must be dissolved in 100 ml (~3.5 US fl oz) of clean water (e.g demineralized)

Not provided necessary material:

- Demineralized water.
- Sprayer for dissolved solution (e.g.: Ref AXO-STK-PV1). Use a sprayer that allow fine mist and prevent large droplets of water.
- UV lamp 365/366nm with visible light filter, 6 Watt power minimum (Types: **Vilber VL 6.L** ; **CAMAG UV lamp 4**, **Crimelite 2-UV**) and UV protective glasses (please see UV lamp User Guide). Please, pay attention that each UV lamp may be slightly different from one another (background signal, signal power etc.).

It is advised to check light detection capabilities with samples beforehand and always use a positive control for each analysis (type: Ref AXO-STK-PC10). If in doubt about your UV light, contact AXO Science.

Protocol:

Beforehand: Personal Protective Equipment

It is advised to wear appropriate laboratory protective equipment (gloves, facemask, hygiene cap and lab coat) to prevent from contaminating the STK Spray solution. It is mandatory to wear UV-protective glasses when using UV light.

Modus operandi:

- Prepare the solution in the spray bottle:** dissolve content of one STK Spray pouch within 100ml of demineralized water. Wait 30 seconds for total reagent dissolution. If necessary, shake lightly.
- Put on UV protective glasses** and turn on the UV light.
- Use the spray bottle containing STK Spray solution:** in the dark, work in small areas (about 1m²): screen the area with the UV lamp to identify what reacts non-specifically to the UV light and then distinguish the signals generated by STK Spray, then, while keeping the UV lamp on at a distance of about 25 cm, spray the solution onto the search area. Spray lightly, vertically, facing you, at a distance of about 10 cm from the target, sweeping from side to side. Do not aim directly at the ground. Adjust the volume of solution sprayed according to the absorbency of the surface being screened. As a guide, 10 ml of solution per square meter on a non-absorbent surface is normal. Do not over-spray the target, as this does not improve detection and may dilute the target DNA.
- Wait a few moments:** as an indication and depending on the absorbency of the surface, between 45 seconds and 3 minutes.
- Note:** Absolute darkness is not required, but it greatly facilitates and improves the detection of sperm traces.

Protocol summary :



Results interpretation:

Once analysis is completed according to the above protocol:

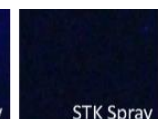
- Presumptive test is **positive**: a blue fluorescent signal is detected with UV light
- Presumptive test is **negative**: no fluorescent signal is detected with UV light



«Positive» result



STK Spray



STK Spray

«Negative» result

Disposal:

No specific recommendations are required. Comply with local Waste Policy Management.

Compatibility:

STK Spray is fully compatible with other forensic solution such as SERATEC® AmylasePaper ou Phadebas Amylase Test (saliva) but also with BLUESTAR® forensic (blood). Always use STK Spray **before** BLUESTAR® forensic or luminol.

Sensitivity:

STK Spray allows to detect semen stains diluted to 1:100 and in optimal conditions to 1:1000 for traces revealed on non-absorbent and smooth surfaces.

Specificity:

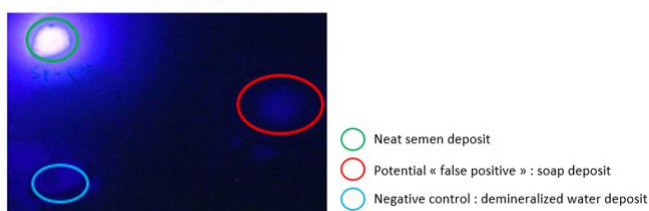
STK Spray is only specific to human male semen.

STK Spray will not show any positive results if it is applied on other body fluids such as saliva, blood or urine.

STK Spray allows the detection of old semen stains (several years) in normal storage conditions.

A signal close to a positive result can appear with the presence of residues of bleach, oxidizing agents, household detergents or moulds. These signals are weaker, less "blue" and appear much later than the recommended time (45 sec to 3 minutes maximum); they are easily recognizable from a positive result.

After STK Spray spraying



Additional analysis:

If in doubt about the presence of a signal on the evidence, it is recommended to carry out a confirmatory test, such as PSA or sperm cells research.

After STK Spray use, the semen trace can be collected, after swabbing from the fabric then quantified and analyzed to determine the genetic profile.

Contraindications and advises:

The simultaneous use of the different products in the STK Sperm Tracker™ range is strongly discouraged as it may result in significant false negative. STK Spray and STK Lab (and vice versa) should not be used on the same evidence.

It is not recommended to use STK Spray on absorbent materials such as fibers or fabrics as it may result in false negative. Using STK Spray on a garment runs a high risk of generating a false negative and, in addition, greatly reduces the chances of revealing the potential trace later with STK Lab paper.

Adding chemical or biological products not mentioned in the protocol may alter test effectiveness.

It is important to visualize with the UV light the materials to be tested before spraying STK Spray in order to compare the fluorescence before/after the use of this product.

The use of a positive control to correctly identify the semen signal is essential. The difference with a potential semen stain is clearly noticeable.

Storage and stability / Shelf life:

Keep away from light and heat. It is advised to store the product at a temperature +35°C (+95°F) and not exceed this temperature for a long period. If storage conditions are not guaranteed, make sure product works normally by using a positive control.

Can be stored in the refrigerator.

Conservation before opening:

Expiry date is on product packaging. Do not use after this date.

Conservation after dissolution:

STK Spray can be used 30 seconds after dissolution, and must be used within 24 hours. Do not keep or reuse opened pouch.

Quality standards:

The STK Sperm Tracker™ products range are manufactured according to the European quality standards ISO 13485. Each batch release is preceded by a quality control (performances and hDNA free), STK Lab is therefore ISO 18385 certified.

Literature:

- Sonoda A., Nagata A., Tomonari K., Ono T., Tomisaka Y., Nishi E.. Establishment of the new semen identification method and the examination to practical introduction. J-STAGE (2021). <https://doi.org/10.3408/jafst.824>
- T.Sijen, S.Harbison. On the Identification of Body Fluids and Tissues: A Crucial Link in the Investigation and Solution of Crime. Genes, 12(11), 1728. S (2021). <https://doi.org/10.3390/genes12111728>
- Utilising Crime-lites® for the visualisation of fluorescence from STK Sperm Tracker™, SEPTEMBER 2021. www.fosterfreeman.com

INFORMATION AND TECHNICAL SUPPORT

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