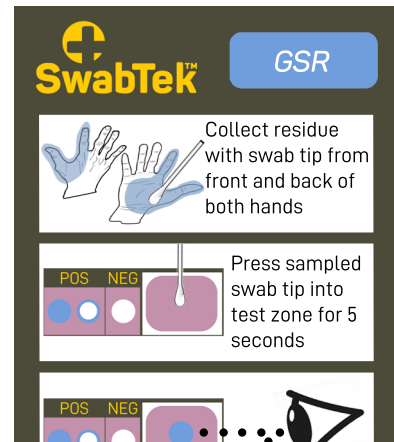




**SwabTek**  
Veriteque USA, Inc.



# Gunshot Residue Test Kit (GSR)

User Manual

*Document • GSR-MANUAL*  
*Version • 1.0*

## CONTENTS

### GSR - MANUAL

Liability Notice & Terms of Use	2
Background	3
Understanding GSR	4
Identifying GSR	5
SwabTek GSR Test	6
Test Components	7
Testing Procedure	9
Setup	10
Sample Collection	11
Conducting the Test	13
Analysis	14
Troubleshooting	15
Contact SwabTek	16



## Liability Notice & Terms of Use

### Notice to Users

Veriteque USA Inc. (SwabTek) field tests are presumptive only and, as such, they indicate the presumed presence of chemical groups and precursors which may be present in a given sample. ALL SWABTEK TEST RESULTS SHOULD BE CONFIRMED BY AN APPROVED ANALYTICAL LABORATORY. All SwabTek tests must be administered in strict accordance with the specific instruction and reference materials that accompany the products for best results.

Veriteque USA, Inc. cannot anticipate all conditions for use of this product and cannot accept responsibility for use or misuse in any particular application. This product has been designed for a variety of applications, under a variety of conditions, but was neither designed nor manufactured as a product for lethal or harmful purposes. Veriteque USA, Inc. recommends the user exercise their judgement to determine product suitability for any specific use-case, and application of the tests' presumptive analysis for their particular purposes. Use of this product for unlawful purposes is expressly prohibited under the terms and conditions of its use.

### Warranty

Veriteque USA, Inc. warrants its products to be free from defects in materials and workmanship under normal use or service for one (1) year from date of purchase. This is a LIMITED WARRANTY and is the sole and exclusive warranty of this product by the Company. This LIMITED WARRANTY applies only where the Products have been properly maintained in accordance with the manufacturer's instructions and have not been subject to misuse, neglect, negligence or accident, as solely determined by Company. No returns are to be made directly to the Company unless authorized by the Returns Authorization (RA) Department.

If you believe your product has any defects in materials or workmanship, cease use immediately and contact Veriteque USA, Inc. for a remedy. If a product proves to be defective in materials or workmanship, we will repair or replace the defective product and send it to you at our expense.

THE COMPANY MAKES NO OTHER WARRANTIES EXPRESSED, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

The information in Veriteque USA, Inc's reference materials is believed to be accurate and represents the best information currently available to the manufacturer. However, the company makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, its correctness or accuracy. Veriteque USA, Inc. employees' or representatives' ORAL OR OTHER WRITTEN STATEMENTS DO NOT CONSTITUTE WARRANTIES and shall not be relied upon by buyer.

### Limitation of Liability

IN NO EVENT SHALL VERITEQUE USA, INC. BE LIABLE FOR ANY PUNITIVE, EXEMPLARY OR CONSEQUENTIAL DAMAGES, ANTICIPATED OR LOST PROFITS, INCIDENTAL DAMAGES, LOSS OF TIME, OR OTHER INDIRECT LOSSES OR EXPENSES THAT ARISE FROM ANY CAUSE RELATING TO OR ARISING FROM THE USE OR MISUSE OF THE PRODUCT, REGARDLESS OF THE FORM OF THE ACTION, WHETHER IN TORT (INCLUDING NEGLIGENCE), CONTRACT, STRICT LIABILITY OR OTHERWISE, AND REGARDLESS OF WHETHER THE COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

### Procedure

If SwabTek's test swabs are used to collect a sample from a consumable good — i.e. plant material, cookies, gummies, candies, etc. — said item should NOT be consumed, regardless of outcome of the test, and should be disposed of in accordance with local regulation. If SwabTek's test swabs are used to collect a sample from a reusable product that users come into direct contact with — i.e. vape pens, pipes, bongs, etc. — said items should be cleaned thoroughly with soap and wiped dry prior to use.

## SwabTek GSR Test Kit | Background

SwabTek's Test Kits are simple, intuitive identification tests that can be used to screen for various types of target compounds. The tests are available in varieties specific to narcotics (cannabis, fentanyl, amphetamines, etc.), as well as in general varieties for explosives and other threats (dry explosives, liquid explosives & threats, gunshot residue).

The Gunshot Residue (GSR) test kit is dry reagent-based spot test that can be used to test surfaces for the presence of GSR. The test consists of two separate pieces, a test swab and a test reagent card, that come sealed in air- and water-proof packaging.

The use of a test swab and reagent card helps simplify sample collection and analysis to a single step, and the entire process takes less than 20 seconds. The test does not require any expensive or complicated electronics and can provide a presumptive indication for the presence of GSR on-scene, allowing forensics investigators to save time and resources, and make decisions promptly.

Since the GSR test kit is lightweight, durable, and non-hazardous, it can easily be stored in wallets, pockets, or glove compartments for easy access and use on the go.

## GSR Testing | Understanding GSR

Upon discharge of a firearm, GSR components become airborne, and can land on and adhere to any surface within the area. The typical radius of GSR is 1 meter (approximately 3 feet) from the point of discharge.



The constituents of GSR are often visible when a weapon is fired. They appear as “gun smoke” at and around the point of discharge. This “gun smoke” contains the organic material, nitrogen-based gasses, and metal fragments that make up GSR, and are the key to testing for whether a weapon has been fired.

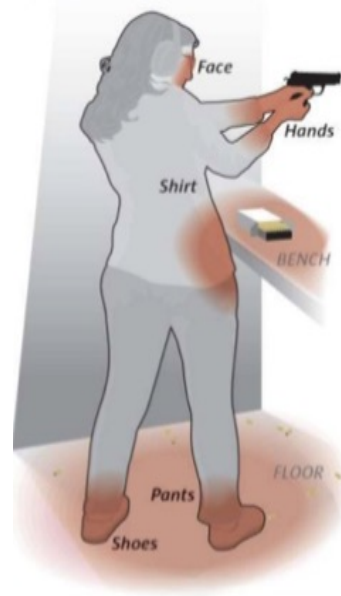
GSR Components:

- **Inorganic metal fragments** (Copper, Zinc, Barium, Lead, Antimony, etc.) from the Primer and Bullet brass casings, the bullet and bullet jacket, and the firearm metal structure itself.
- **Organic residue** from the explosives in the primer and smokeless powder inside the shell casing. This organic residue is composed of a high percentage of Nitrogen based organic molecules.

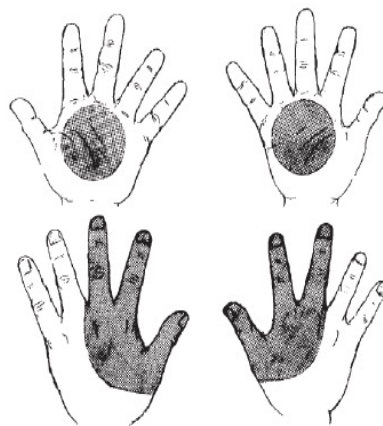
## GSR Testing | Identifying GSR

GSR settles on surfaces near a firearm's point of discharge or where a bullet penetrates its target.

In the diagram to the right, areas highlighted in pink indicate where GSR is likely to deposit. This could include the front of the user's body (hands, face, clothing) or nearby surfaces (bench, floor, wall). The nearer a surface is to the point of discharge, the more likely it is to contain GSR.



GSR is extremely likely to collect on the hands of individuals who have recently held or fired a weapon, especially if the weapon was handled with bare hands. It is likely to be concentrated on areas that were in contact with the firearm (palms) or were near the point of discharge (back of hand from thumb to middle finger).



## SwabTek's GSR Test

SwabTek has designed a test to be used in GSR analysis. The test is designed to maximize the ability to collect and analyze GSR swiftly, accurately, and with greater certainty than other tests on the market.

The test relies on the same principles as other SwabTek presumptive tests. The chemistry is based on dry-powdered reagents that are easier and safer than liquid reagents, and sample collection relies on a simple, pre-treated swab that can be used to safely and precisely collect samples from any surface.

The test's reagent is used to screen for **copper & zinc particles** on surfaces such as firearms, bullet shells and casings, body parts, and clothing.

Using SwabTek's test, these GSR components can be successfully detected on:

- Firearm surfaces (grip, barrel, trigger, etc.)
- Bullet parts (spent shells, casings, etc.)
- Human body parts (hands, arms, face, etc.)
- Hard surfaces (tables, chairs, floors, etc.)
- Material surfaces (clothing, car seats, etc.)

## GSR Test Kit | Test Components

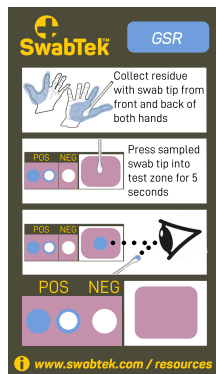
SwabTek's GSR test consists of two pieces, delivered in a single, sealed sachet:

- 1 x pre-treated swab
- 1 x reagent-treated dry paper test card

### Dual-Compartment Sachet



### Test Card



### Pre-Treated Swab





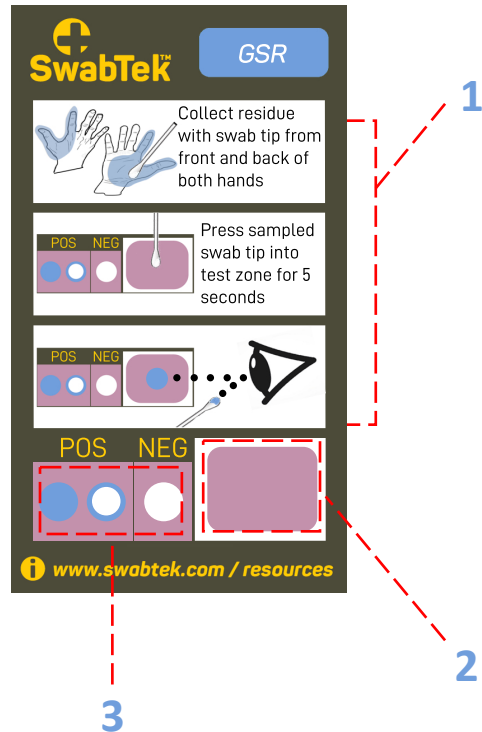
## GSR Test Kit | Test Components

SwabTek's GSR Test Card 3.5" x 2" paper card that consists of three separate sections. The top right corner of the test card is printed with the name of the test.

### GSR Test Card

SwabTek's GSR Test Card 3.5" x 2" paper card that consists of three separate sections. The top right corner of the test card is printed with the name of the test.

1. **Instructions:** The three panels at the top of the card have instructions for conducting the test.
2. **Test Zone:** This is the site of the reagent that will be used in conducting the test.
3. **Color Reference Panel:** This color panel provides a quick reference guide for the color patterns that are indicative of positive and negative results.



## General Testing Procedure

When residue containing a detectable target compound is transferred to, and mixed with, the dry reagent zone on the test card, the presumptive identification of the compound in question is indicated by an intense and rapid color change in the reagent. Depending on the nature of the sample, this color change may occur on the test swab, on the test card, or on both surfaces. For this reason, it is essential that the user check both the swab and card for indication of color change.

The color development for a positive result should be rapid and will often be permanent. Due to the variance in purity that may be present in any given sample, the intensity of the color development could range from weak to very strong. It is advised that users familiarize themselves with the expected color development of a positive result prior to conducting tests in the field in order to help assess test outcomes. Users can become familiar with test outcomes through use of this manual, studying the color reference panel on the test card and, if a safe and viable option, through secure and controlled first-hand practice on known positive samples.

Following the testing procedure, it is recommended that users take photographic record of the test result, both the test card and test swab, as well as the sample itself, and note the date, time, and conditions of the test (location, lighting, temperature, etc.). Although the color change present in a positive test result is permanent, the hue and intensity of the color may change over time with continued exposure to air, even if the test components are sealed, so a test result that is more than a few minutes old can no longer be considered valid for visual analysis. If a proper reading or a well-lit and color-balanced photograph is not captured in this timeframe, the user may be required to re-do the test.

Following the completion of this procedure, the test card, test swab, and sample in question should be sealed in separate, secure, dry and air-tight storage if required for evidence. Otherwise, the test can be disposed of via recycling, or in accordance with local waste regulations. The test card and test swab do not contain any dangerous or hazardous materials, and do not require any special disposal procedures (acid neutralization, HAZMAT disposal, etc.)

## Setup – Preparing the Test

The user should tear the dual compartment sachet open and extract the test card and test swab. Be sure to hold the swab by the shaft, and to not make contact with the test card's reagent zone, in order to avoid contamination of the test's reagents.



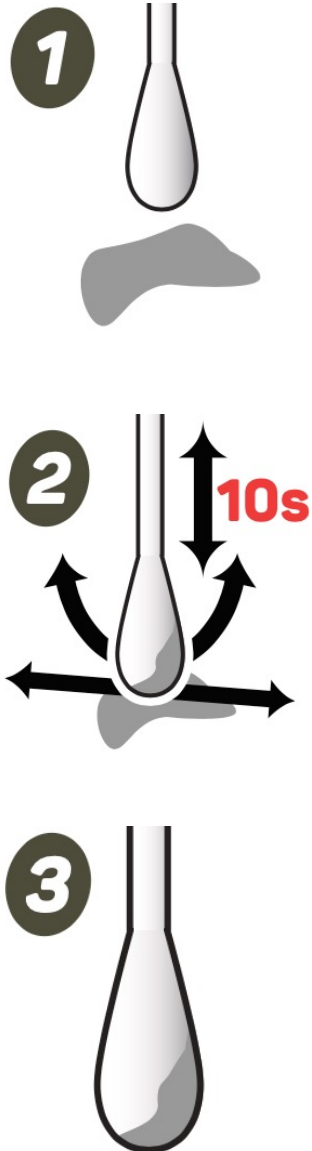
## Sample Collection

The user should use the pre-treated test swab to collect residue from the suspect surfaces. The swab should be firmly rubbed on the surface for a minimum of ten seconds, ensuring that contact is concentrated on the tip of the swab.

During sample collection, it is important to collect a full sample from the surfaces that are likely to contain the highest concentration of GSR.

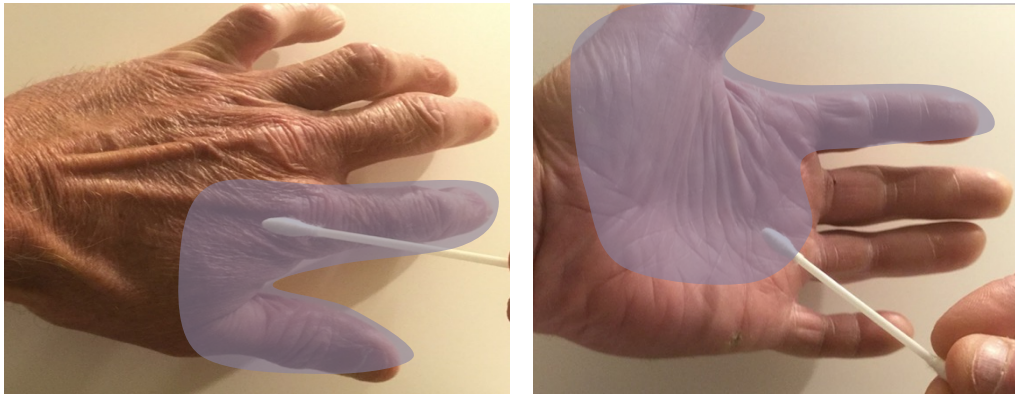
The user should aim to collect as much test residue as possible directly on the tip of the swab and avoid tilting or swiping the swab across the test surface. A more highly concentrated sample collection will help to ensure that any potential positive result creates a strong and definitive color change. If the test substance is visible to the naked eye, the user may inspect the tip of the swab to ensure that the substance is being collected properly.

Once a reasonable amount of test substance has been collected, the user should proceed immediately to the next phase of the testing procedure.



## Collecting Residue Samples off Hands

In the case that the user is collecting suspected residue from hands, the collection should be focused in high GSR-concentration regions, as in the following image:

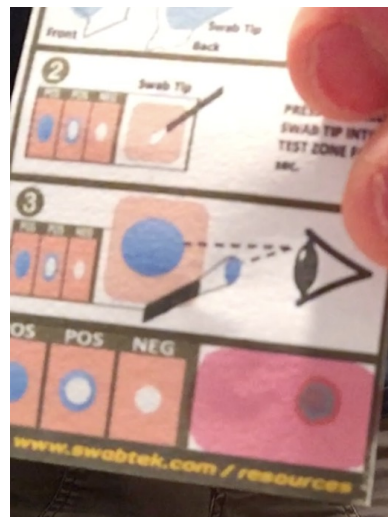
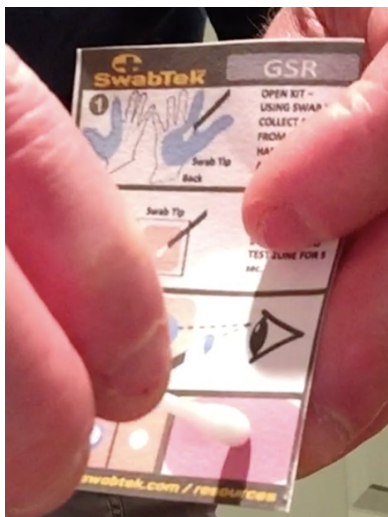


## Conducting the Test

Directly following sample collection, the user should begin the sample testing procedure. The user should remove the test card from its compartment of the sachet, and secure it against a stable backing (tabletop, counter, notebook, palm of gloved hand, etc.) to prepare for testing.

The tip of the test swab should be pressed onto the reagent zone for 5 seconds. It is important to make firm contact between the sample on the swab and the reagent printed on the card, as the reagent and sample will need to be combined in order to conduct the test.

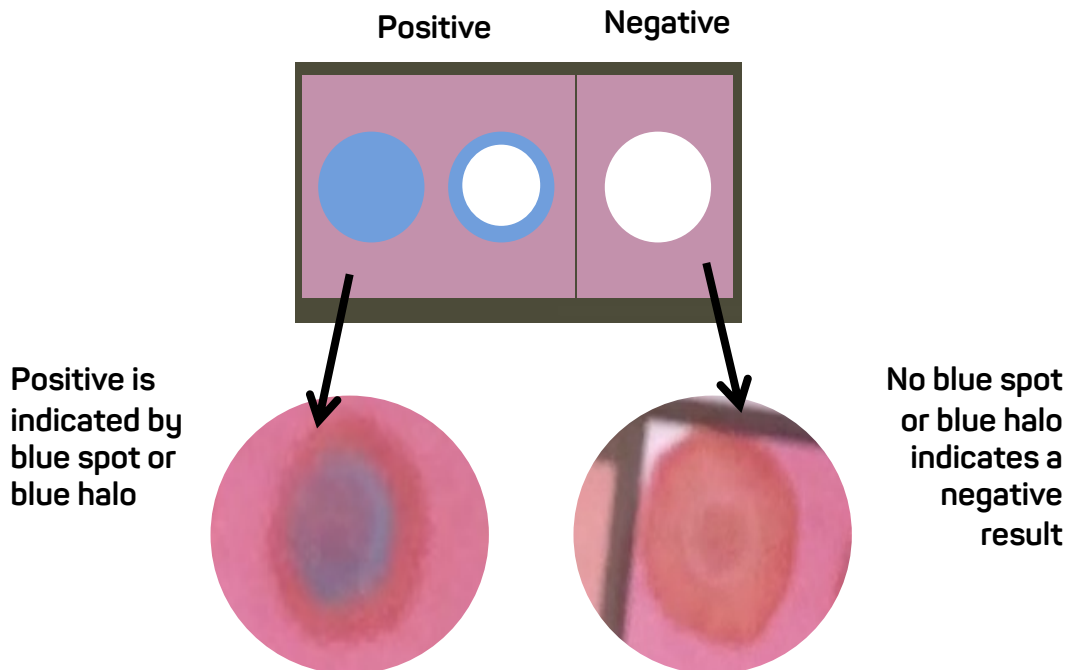
After 5 seconds, the swab can be withdrawn from the test card, and the user must immediately proceed to the final stage of the the test, analyzing the results.



### Analysis - Inspect the Reagent Zone for Color Indication

If the sample collected contains copper/zinc particles, the reagent zone of the test card will produce a BLUE HUE where the sample had been pressed to the reagent zone. This spot of blue hue may vary in size and strength.

Upon completion of the test, the user should immediately look for signs of this color development. It is essential that the user inspect the reagent zone under bright, non-colored lighting. It may be necessary to use a magnifying glass to check results.



## Troubleshooting

SwabTek test kits are designed to detect the presumed presence of target compounds in samples. The results of the test are presumptive only, indicating to the best of the test's capability a presumption that the target compound is or is not likely to be present in a given sample. Presumptive tests should not be used to determine the legitimacy or legality of the presence of the target compound.

As SwabTek's tests are a color change test that rely on the user to draw conclusions about the results, there are a number of factors to consider about the use of the test. The following can result in mistaken readings that are based on human or procedural error, rather than an error with the color chemistry:

- Improper/non-white lighting used in the test procedure
- Partial to full color blindness of the operator
- Highly colored/color-producing samples used in testing (wet or dry paints, dyes, tea leaves, etc.)
- Highly viscous or thick samples used in testing (candle wax, silicone oil, engineering grease, etc.)
- Testing conditions where the test swab, test card, or sample may have been compromised (heavy rain, smoke, extreme temperatures, etc.)

For certain test kit varieties, there are known False Positive compounds that will produce similar test results to the target compound. These False Positive compounds are typical of all presumptive color change tests and are detailed in the Color Reference Charts at the end of this manual, if applicable. It is important that users be cognizant of the known False Positives and use their best judgment in applying this knowledge in the context of their testing.

If the user is ever unsure about the procedure or result of a test, the test should be re-done. If the user is uncertain about an element of conducting or analyzing the test, and cannot find answers in the reference materials, they should contact a member of SwabTek's team with relevant support (photographs, descriptions, test information) if applicable.





## Contact SwabTek

Veriteque USA, Inc. (SwabTek)  
8920 Kenamar Drive, Ste. 202  
San Diego, CA 92121

Ph: + 1-775-277-7997  
Website: [www.SwabTek.com](http://www.SwabTek.com)  
Contact: [Sales@SwabTek.com](mailto:Sales@SwabTek.com)