
TECHNICAL INFORMATION

Gunpowder Particle Detection Kit

Catalog No. GPD100

INTRODUCTION

The distance of a firearm discharge is an important factor in crime scenes. The close range firing in a suicide, murder or other crime involving firearms can be determined by the detection of powder particles. A study of the scorching, blackening and powder patterns on the object or victim at the crime scene can tell much about the distance and angle of firing. Dark rings around the bullet hole due to abrasion or dirt can be confused with charring and blackening resulting from discharge. Small gunpowder particles may go unnoticed if a sensitive method is not used. Therefore, a chemical test for the nitrite (burned particles) of gunpowder will be very useful in a study of crime scenes involving firearm discharges—both on the victim and the criminal.



PRECAUTIONS

- Before using this kit, consult the appropriate Material Safety Data Sheets (MSDS) found on our website at www.sirchie.com/support.
- Harmful if swallowed or inhaled. Skin and eye irritant. If contact made with skin, wash with soap and water; if contact made with eyes, flush with plenty of water for approximately 15 minutes—seek medical attention.
- Highly Flammable! Do not use Reagent B around heat, open flames or sparks—dispose of empty containers according to Local, State, and Federal regulations.

PROCEDURE

The two-step reaction involved in the formation of orange dye is known as diazotization and coupling. It is this combination of reactions that is specific for nitrite ions. This kit provides a sensitive and specific method for the detection of nitrite particles at the crime scene. The sensitivity of the test eliminates the possibility of omission and error attending visual examination of the crime scene. By utilizing No. GPD100 kit, it is possible to distinguish between close-range and distant firearm discharge. Close-range firing and approximate distances can be determined by the powder tattooing on the body or clothing of the victim. After the development of nitrite particles, test paper should be photographed for a permanent record of particle dispersion.

Preparation of Reagent Solution

NOTE: *Due to the limited shelf life of the reagent (approximately 24 hours), the remaining reagent solution should be disposed of after use according to local, state, and federal regulations.*

1. Remove the seal and cap from Gunpowder Particle Reagent B.
2. Remove the seal and cap from Gunpowder Particle Reagent A disposable vial and empty the powder contents into the Reagent B jar.

3. Replace the cap on the Reagent B jar and shake vigorously for approximately 3 minutes.
4. Remove the cap from the No. SB4 Spray Bottle and fill it with the solution from the Reagent B jar. Screw the sprayer head back on. Clean the spray unit with water after each use. *Note: The reagent solution is now ready for application to suspected gunpowder residue on cloths and skin as instructed below.*

Detection of Residue on Clothes

1. Spray the prepared reagent solution over the entire surface of a sheet of Gunpowder Detection Contact Paper and place it directly over the area of clothing to be tested.
2. Place a sheet of untreated Contact Paper on the top of the treated sheet and apply pressure over the entire area of the sheet.
3. A positive test for the presence of nitrite is indicated by the appearance of pink specks within approximately 2 minutes of application.



STEP 1



STEP 2



STEP 3

Detection of Residue on Skin

1. Remove the protective cover from the Gunpowder Particle Remover No. GPD05 and place it in contact with the skin area to be tested.
2. Press the Remover firmly against the skin so that any burnt particles present will adhere to the adhesive surface.
3. Spray the prepared reagent solution over the entire surface of the Remover that was in contact with the skin and press the sprayed portion against the white backing.
4. A positive test for the presence of nitrite is indicated by the sheet turning pink within approximately 2 minutes of application.

GPD100 Contents

- 6- GPD01 Gunpowder Particle Reagent A, 1/6 dram (0.6ml)
- 6- GPD02 Gunpowder Particle Reagent B, 1 oz. (30ml)
- 12- GPD03 Gunpowder Detection Paper
- 1- SB4 Spray Bottle, 4 oz.
- 12- GPD05 Gunpowder Particle Removers