



2021 Law Enforcement & Corrections Division Instructor Manual



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Introduction

Welcome to the SABRE® Aerosol Irritant Projector Instructor Course

Security Equipment Corporation (SEC) is the family owned and operated manufacturer of the SABRE® product line of Aerosol Irritant Projectors for law enforcement, military, corrections, and security personnel. SEC's ISO 9001:2015 Certification, HPLC testing, and health studies are true signs of its dedication to enhancing officer safety. SEC is committed to benefitting officers through product advancement and realistic training.

Officers talk and we listen. We created a spray with 1.33% major capsaicinoids after officers expressed concerns that other manufacturers' sprays were not strong enough for real world, emotionally charged, resistant individuals. We left the natural red color from food grade peppers in the oleoresin capsicum after officers expressed a desire to be able to visually see the location of their spray during deployment. We listened when officers asked for the ability to deploy their spray continuously from any angle by creating SABRE® Crossfire™. This is only a small sampling of the product innovations from SABRE® that will benefit your agency!

In 2009, SEC partnered with Setcan™ Corporation, Canada's largest use of force training and product company to improve our existing Aerosol Irritant Projector Instructor Course. Setcan™ Corporation is recognized worldwide for their expertise in the area of human performance under stress and realistic training approaches. The result has been an integration of previous material developed by our professional cadre of master instructors with a comprehensive program that will develop instructors beyond regular standards in this field.

SEC is proud to welcome you to the SABRE® Aerosol Irritant Projector Instructor Course for law enforcement, military, corrections, and security personnel.

Glossary

- **Subject** – all persons upon whom this product is used, including students and persons who officers encounter in the field or in jails or prisons.
- **Student** – someone taking either the SABRE® Instructor Course or SABRE® User Course.
- **Aerosol Irritant Projector (AIP)** – includes any aerosol pressured container which include the following irritants OC, CS or OC+CS (Note that OC & CS are different active ingredients producing different effects. More in Chapter 2)
- **SABRE® Contamination Waiver** – The full name is “SABRE® Contamination Waiver - SABRE® DISCLOSURE, ASSUMPTION OF RISK AND RELEASE FROM LIABILITY” which must be signed by all students before participating in the voluntary contamination. Any student who does not sign this waiver CANNOT participate in the voluntary contamination. Throughout the manual, we will refer to this waiver as the “SABRE® Contamination Waiver” although sometimes the entire name is used. It can be found at www.setcan.com/sabrewaiver.pdf. Instructors are REQUIRED to have their students read, understand, initial, and sign this waiver or they CANNOT participate in the voluntary contamination.
- **Level I Contamination** – spraying subject directly to their facial area.
- **Level II Contamination** – occurs when officer is contaminated by making direct contact with subject during the restraining process.
- **Level III Contamination** – occurs when subject is within an area which the product has deployed.

Goals and Objectives

At the end of this course, candidates will be able to correctly:

- Provide a brief evolution of “Pepper” or irritant based weapons options from war to law enforcement
- Identify the two types of incapacitation
- Identify the primary goal of deploying an aerosol projector
- Identify three main tactical advantages created by contaminating a subject with aerosol projectors
- Identify the four tactical deployment advantages to aerosol projectors
- Define Oleoresin Capsicum (OC)
- Identify the best measure of identifying the pungency of an OC formulation
- Identify the method used by Security Equipment Corporation to measure the major capsaicinoids in each formulation
- Identify the two main properties of capsaicin that have a physiological effect on the human body
- Identify which SABRE® formulations are NOT Electronic Immobilization Device compatible
- Identify the five delivery systems available for SABRE® formulations
- Identify the point of aim for the stream delivery system
- Identify the point of aim for the fog/cone/Phantom delivery systems
- Identify the point of aim for the foam delivery system

- Identify the point of aim for the gel delivery system
- Identify the minimal safe distance for the Duty Belt Projectors
- Identify the minimal safe distance for the MK-9 & MK-21
- Identify the minimal safe distance for the MK-46 & MK-60
- Explain the firing position for generation 3 aerosol projectors (Crossfire)
- Identify the effective delivery distance for the Duty Belt stream, fog/cone, foam, and gel
- Identify the two security features available for the Duty Belt Projectors
- Identify the nomenclature of the Duty Belt Projectors
- Identify the mandatory safety equipment required when using SABRE® inert products
- Identify the effective delivery distance for the MK-9/MK-21 high volume stream, fog/cone, and foam delivery systems
- Identify the two security features of the MK-9/MK-21
- Properly demonstrate the MK-9/MK-21 retention grip
- Identify the nomenclature of the MK-9/MK-21 canister
- Demonstrate proper deployment of the MK-9 Cell Buster
- Identify the three security features of the MK-46 & MK-60
- Identify the nomenclature of the MK-46 & MK-60
- Demonstrate how to properly hold and deploy the MK-46 & MK-60
- Identify the nomenclature of MK-3 and MK-5 aerosol grenades
- Identify the only security feature of the MK-3 and MK-5 aerosol grenades
- Demonstrate how to properly deploy the aerosol grenades
- Identify the five contributing factors to death proximal to restraint
- Identify the five main steps for proper subject decontamination
- Identify the four main steps for proper area decontamination
- Identify the four benefits to being voluntarily contaminated
- Identify five factors to consider when constructing contamination drills
- Demonstrate how to effectively set up student decontamination stations
- Demonstrate how to appropriately use SABRE® decon formula
- Identify the length of time a student must wait to be contaminated after any corrective eye surgery
- Identify the best solution for decontamination readily available to officers
- Identify the Preexisting Medical Conditions which would prevent students from participating in the voluntary contamination
- Identify the Preexisting Medical Conditions which require Emergency Medical Services after subject contamination
- Identify what form must be read, understood, initialed, and signed by students prior to any voluntary contamination exercises
- Identify who should be encouraged to be present during voluntary contamination exercise

Course Training Package

Candidates should ensure they have been supplied with the following course material:

- SABRE® Aerosol Irritant Projector Instructor Manual
- SABRE® Aerosol Irritant Projector Instructor Portal Log In Information containing User Power Point, Videos & Additional Training Info
- One MK-3 or MK-4 SABRE® Inert Training Canister

Delivery

The SABRE® Aerosol Irritant Projector Instructor Course is an eight – ten (8-10) hour course Consisting of the following:

- Classroom Theory
- Written Test
- Inert Training Drills
- Product Demonstration
- Voluntary Contamination and Decontamination

Evaluation

In order to be certified as a SABRE® Aerosol Irritant Projector Instructor, the candidate must demonstrate mastery of the course material through the following:

Written Test

The written test consists of 55 questions. Candidates must achieve a minimum score of **80%** or **44/55** in order to pass the written portion of the evaluation.

Observed Performance

Since individuals being accepted in this course are required to have prior teaching experience, candidates will be under constant observation while performing drills. Only individuals who can perform the objectives clearly and correctly will be certified as an instructor. The Master Instructor will ensure appropriate assistance is provided to any candidate that is struggling.

Acknowledgement Letter & SABRE® Contamination Waiver

All Instructor candidates are required to read, understand, initial, and sign both of these forms.

Certification

Certification is valid three (3) years from date of issue.

Re-Certification

Online Re-Certification is available at www.setcan.com. Online Re-Certification is valid for another two (2) years and can only be taken once before attending another physical class.

User Courses

Delivering User Level Courses

SABRE® Aerosol Irritant Projector Instructor Portal contains a User Power Point and various videos. Certified Instructors should identify the specific Power Point pages allowing for customization and update for their agency's specific needs. Security Equipment Corporation and Setcan Corporation do not accept any responsibility and shall be held harmless for any alterations, changes, contradictions, or additions made by instructors or agencies that do not follow the instructions provided by this manual.



SABRE® Instructors are Not Permitted to alter the SABRE® Contamination Waiver – SABRE® Disclosure, Assumption of Risk and Release from Liability Form which all students must read, understand, initial, and sign prior to participating in their voluntary contamination. (www.setcan.com/sabrewaiver.pdf)

Contact Information



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Safety Briefing

To ensure the utmost safety for participants the following rules will be adhered to throughout the entire training day:

1. Absolutely no live weapons or ammunition are to be in the possession of any participant or instructor. This includes, but is not limited to firearms, ammunition, tactical knives, electronic immobilization devices, aerosol irritant spray, batons, etc. **IF YOU HAVE ANY LIVE WEAPONS IDENTIFY YOURSELF IMMEDIATELY TO THE INSTRUCTOR WHO WILL ASSIST IN SECURING YOUR WEAPON(S).**
2. Any training weapons must be inspected by the Instructor prior to start of instruction. **PLEASE ADVISE IF YOU HAVE ANY TRAINING WEAPONS THAT NEED TO BE INSPECTED.**
3. All participants will wear approved safety goggles during all training drills involving inert canisters.
4. Students are expected to act in a professional manner; no horse play will be tolerated.
5. Any student observing potential danger to anyone during training will immediately halt instruction and bring the concern to the attention of the instructor.
6. Anyone who has undergone LASIK or any other corrective eye surgery within the preceding six (6) months must immediately identify yourself to the instructor as you cannot participate in the voluntary contamination exercise. After six (6) months, you must also have written approval from your doctor to participate in the voluntary contamination exercise.
7. Anyone suffering from asthma who wishes to participate in the voluntary contamination exercise must immediately identify yourself to the instructor and ensure that appropriate prescribed medicine such as an inhaler or ventilator is in your possession. You must also have written approval from your doctor to participate in the voluntary contamination exercise.
8. Anyone having a severe allergy to peppers must immediately identify yourself to the instructor as you cannot participate in the voluntary contamination exercise without an authorized note from a doctor.
9. All participants will read, understand, initial, and sign the SABRE® Contamination Waiver – SABRE® Disclosure, Assumption of Risk and Release from Liability Form. It is the responsibility of the student to advise the instructor of any training exercises that they cannot participate in and if they have any preexisting medical conditions which would prevent student from being contaminated. (These completed, signed forms will be turned in to the instructor prior to the start of instruction and shall be retained by the agency performing the voluntary

contamination for at least 10 years. Agencies may opt to retain the form longer than this time frame as deemed necessary. In addition, the agency performing the voluntary contamination can scan and email them to PublicSafety@SabreRed.com or mail to Security Equipment Corporation, Attn: Training, 815 Sunpark Drive, Fenton, MO 63026.)

10. All students are required to have been deemed fit for duty by their agency before they can participate in voluntary contamination.

 **WARNING**

Any students with any of the following preexisting medical conditions listed on the SABRE® Contamination Waiver WILL NOT be allowed to participate in any of the voluntary contamination exercises (Eye Disorders, Epilepsy, Heart Problems, Respiratory Problems, Lung Problems, Diabetes, High Blood Pressure, and Other Medical Issues).

Instructor Guidelines

1. All rules, requirements, safety guidelines and warnings apply to both Instructor Certification Courses & User Certification Courses.
2. Course Guidelines
 - a. All cell phones are to be placed on silent or vibrate.
 - b. Adhere to the schedule and any predetermined break times (outline when breaks will occur, food & drink authorization etc.).
 - c. Be professional & considerate.
 - d. Adhere to any applicable agency specific rules.
3. Instructor should be relaxed, confident, professional, and approachable.
4. Ensure all students fill out the course roster and read, understand, initial, and sign the SABRE® Contamination Waiver (www.setcan.com/sabrewaiver.pdf), and that both are turned in to you at the beginning of the class. Also, ensure a copy of both are sent to SEC or the training administrator for agency user training. (Neither I nor my agency may alter the SABRE® Contamination Waiver)
5. Course Instruction
 - a. Lesson plan
 - Know what you are going to be teaching (Review SABRE® Instructor Portal at least 72 hours prior for updates before teaching your user class.)
 - Have the proper materials.
 - Before starting, review what the class will cover.
 - b. Stories keep it interesting (stories should be relevant to class)
 - c. It can be fun – students should enjoy the experience.
 - d. Addressing questions:
 - Encourage students to ask questions
 - Answer honestly (do NOT guess – if you do not know the answer consult with SABRE® and we will get you the answer)
 - Stay on topic
 - e. Inert training drills - Learned repetition creates muscle memory.
 - f. Know your audience – You are instructing fellow professionals. Treat them as such.
6. Course Test – All students must complete. Review the test (if time permits) with the students before concluding the class.

Chapter 1 – INTRODUCTION TO AEROSOL IRRITANT PROJECTORS

OVERVIEW

The idea of blowing, burning, throwing, or delivering an irritating substance into the eyes of an attacker is not a new or novel idea. Soldiers from ancient armies used this tactic thousands of years ago by blowing ground chili peppers into the eyes of their enemies to interfere with their ability to see. Since battles during this time were fought in close quarter, it was an effective tool to give the soldier a tactical edge during engagement. Once the pepper took effect on the eyes of their adversary, they would move in with their attack.



1.1 BRIEF HISTORY OF PEPPERS AS A WEAPON

Since ancient times, the theory behind delivering a foreign body into the eyes was not to incapacitate the attacker, but to interfere with their visual system to increase the probability of a successful attack with another weapon system. This interference would give a tactical advantage by making it very difficult for the adversary to visually track or locate their opponent. This strategy dramatically improved the probability that the soldier's attack would be successful as the ability of the adversary to defend against an attack was interfered with. This strategy has been observed by military historians as being used by the Chinese, the Spanish, and the Japanese, including the ancient assassination sect, the ninjas.

In the 20th century, modern armies began to explore a safe effective way to utilize this strategy. Unfortunately, the reality of the modern battlefield limited the use of chemical munitions and OC as an effective tool for soldiers. This is due to the extreme distances that modern weapons are employed along with the development of gas masks. This has started to change again as soldiers in the 21st century are now being asked to participate in similar roles to police or peace keepers.

Between 1987 and 1989, the FBI tested and endorsed OC spray as their official agent and by 1991 over 3,000 law enforcement agencies had adopted OC spray as a control weapon/force option.

SABRE® has been instrumental in introducing advancements in formulations, UV marking, colored marking, and specialized delivery systems. All of these advancements will be covered in detail in coming chapters.

1.2 PEPPER SPRAY/OC SPRAY vs. MACE

Call it Pepper spray, OC Spray or just OC, but do not call it mace. Mace was the name originally given to CN Tear Gas when police began using it around 1965. Due to the potentially toxic nature of CN Tear Gas, it was later replaced by CS Tear Gas which was also found to be more potent. After the FBI study concluded, agencies began switching to Oleoresin Capsicum Sprays in the late 1980's / early 1990s. Since then, due to the inflammatory effect of pepper spray which lead to increased effectiveness and reduced injuries, Pepper Sprays/OC sprays have become the chemical agent of choice amongst law enforcement & corrections. It is important to share this information with your agency so that officers properly report & articulate force.

1.3 SABRE® HISTORY



Security Equipment Corporation, a family owned and operated manufacturer, distributes its products worldwide. In our 45+ years of existence, our core products have always been Aerosol Irritant Projectors (AIP): Law Enforcement AIP, Civilian Self-Defense Sprays, and Animal Attack Deterrent Sprays. Prior to the Montreal Protocol, we were a large producer of Halon Fire Extinguishers. We launched our law enforcement product line in 1997 and initially invested in our industry changing In-House HPLC Lab in 2002. Crossfire in 2008, Phantom OC in 2010, SABRE® Gel in 2011, and the SABRE® Stinger in 2016 are some of the continuing industry advancements we have introduced in recent years.

After numerous requests, market research and testing, we decided to introduce SABRE® Law Enforcement Aerosol Irritant Projectors in 1997. Agencies worldwide have switched to SABRE® products because of SABRE®'s product performance, independent laboratory testing, quality control, HPLC guarantee, training and service. Security Equipment Corporation now operates four (4) aerosol lines dedicated exclusively to producing aerosol irritant projectors. We believe our exclusive focus on this category, our 45+ years of experience and commitment to producing the best AIP

possible have made Security Equipment Corporation the global leader in our respected category.

Ultimately, most agencies have switched to our products due to performance and safety. SABRE® provides officers with the best AIP and the best chance to gain control of “goal oriented”, alcohol and/or drug induced and emotionally disturbed subjects without the need to escalate to a higher level of force. Our commitment to research and testing will only allow us to improve on our already superior products as we move forward. Our ultimate goal is officer safety and agency satisfaction.

1.4 LOST IN TRANSLATION

Unfortunately, somewhere between ancient times and modern police application the intent of these types of weapons was lost. When first introduced to law enforcement, officers were told that aerosol irritant projectors were designed to incapacitate an attacker or resistant individual. To the surprise of many officers, the product failed to meet this standard during field application. In fact, in some cases it led to an escalation in resistance.

Any incapacitation of the individual from AIP application occurs because the subject chooses to focus on the pain and comply with the officer as a means of ending the encounter. This type of incapacitation is referred to as psychological incapacitation. Psychological incapacitation is not the same as physical incapacitation.

Types of Incapacitation

Psychological Incapacitation - When a subject consciously chooses to stop resisting as a result of focusing on pain, loss of goal orientation or any other cognitive influence. Psychological Incapacitation is an internal process and can be changed anytime the subject chooses.

Psychological effects include fear, anxiety, and panic.

Physical Incapacitation - When a subject is physically restrained and, regardless of goal orientation or desire, cannot overcome the physical restraint.

It is only once we reject the idea that AIP were designed to incapacitate a resistant subject that we can examine the true benefit of these products.

1.5 TACTICAL ADVANTAGE

AIP are not intended to cause physical incapacitation, but to give officers a 'tactical advantage' by interfering with the attacker's visual and respiratory system while potentially causing an inward focus on pain.

Aerosol Irritant Projectors Affect the Visual and Respiratory System

When an officer chooses to deploy their spray on a resistant subject, their mindset should be one in which they recognize that it will give them a tactical advantage over their adversary. If the subject stops resisting as a result of the spray, the officer should view this as a bonus, never as the expectation of opting to spray.


By understanding that aerosol irritant projectors are designed to give an officer a tactical advantage by restricting vision, restricting breath depth, and introducing pain, several advantages are realized.



Three Tactical Advantages of Aerosol Irritant Projectors

1. **Restriction of Visual Information.** The ability to restrict the vision of the subject provides a huge tactical advantage to officers. Vision is the most important survival sense possessed by a human. Vision allows an assailant to locate the officer and quickly obtain target acquisition for any technique or tactic. The ability for an officer to take away acquisition ability will provide an edge to the officer. The officer can capitalize on windows of opportunity presented when the subject's eyes are shut.
2. **Restriction of Deep Lung Breath.** The ability to restrict the depth of the breath provides a tactical advantage by reducing the ability to acquire advanced respiration. When involved in a physical altercation or fleeing from officers, an assailant will require a greater level of oxygen exchange to assist in performance. This is usually performed by having deeper respiration. Once the particles are breathed into the lungs, the ability to take deep breaths will be hampered and painful. This can dramatically affect the endurance of the resistant individual.
3. **Inward Focus on Pain.** The pain caused by contact on the eyes, the skin, and particle inhalation may compel a subject to mentally focus on that sensation. This may lead to the subject becoming psychologically incapacitated. Again, officers must understand that this is a conscious decision made by the offender. However, even if the offender does not choose to stop resisting, the pain can constantly interfere with their thought process. This can slow down their decision making abilities, allowing officers to capitalize on the break in mental focus.

Once the visual and respiratory systems have been compromised, the officer can utilize other control tactics or weapons/force options to bring the subject under control in a safe and more effective manner.

 WARNING
<p>To prevent SERIOUS INJURY or DEATH, ALWAYS be prepared to respond with the appropriate level of force to maintain your safety should the AIP not be effective.</p> <p>Aerosol Irritant Projectors, including SABRE® Aerosol Irritant Projectors, will not always be effective in producing psychological incapacitation in contaminated subjects. The AIP may not contact the subject's eyes and therefore not result in the restriction of visual information (involuntary eye closure). This is the primary reason for lack of effectiveness in some situations.</p>

1.6 TACTICAL DEPLOYMENT

In order to assist in selecting the appropriate control option for a given event, the operator must understand the tactical deployment advantages of an AIP. AIP have four distinct tactical deployment advantages.

Four Tactical Deployment Advantages of Aerosol Irritant Projectors

1. **Distance** – AIP can be deployed on a subject from a distance outside of the widely accepted reactionary gap for an unarmed subject.
2. **Multiple Assailants** - AIP can be quickly deployed on multiple subjects.
3. **Universal Application** - The use of AIP is not influenced by the size, strength, and skill of the operator. Since its application is relatively simple, special skills and extensive training are not required to deploy properly.
4. **Area Contamination** - AIP is very useful for contamination of confined areas. This can assist in locating subjects that are hiding in small spaces without the need for the officer to expose themselves. AIP can be deployed into the confined area resulting in either the subject being driven out or at the very least, coughing so that officers can confirm a threat is present.

One of the most beneficial advantages of aerosol irritant projectors is that they allow for application at a distance outside the accepted reactionary gap for an unarmed individual. Unlike impact weapons/force options, the operator does not need to be in immediate proximity to apply the weapon/force option. It also gives the operator the ability to quickly contaminate multiple assailants with minimal effort.

1.7 CHAPTER 1 REVIEW - QUESTIONS & ANSWERS

1. *Why did ancient warriors use various methods to contaminate the eyes of their enemies with crushed peppers?*

Since battles during this time took place at close proximity, when crushed peppers were thrown into the eyes, the soldier could attack and kill their enemy while the enemy was sightless.

2. *What are the two types of incapacitation?*

Psychological Incapacitation and Physical Incapacitation.

3. *What type of incapacitation are aerosol irritant projectors capable of creating?*

Psychological Incapacitation.

4. *What is the primary goal when utilizing an aerosol irritant projector?*

To provide officers with a "Tactical Advantage".

5. *What are the three main tactical advantages created by using an aerosol irritant projector?*

- Restriction of the subject's visual information.
- Restriction of the subject's deep lung breath.
- Potentially causing the subject to focus inward on pain.

6. *What are the four tactical deployment advantages of aerosol irritant projectors?*

- Distance.
- Multiple Assailants.
- Universal Application.
- Area Contamination.

Chapter 2 – Understanding Active Ingredients

OVERVIEW

In Chapter 2, we will learn what is occurring in the eyes and skin that has become contaminated with Oleoresin Capsicum (OC). We will examine why the eyes involuntarily close and create the sensation of burning. Having a clear understanding of the physiological responses to Oleoresin Capsicum will assist the instruction of proper contamination and decontamination. We will also look at the active ingredient, CS.

2.1 OLEORESIN CAPSICUM

Pepper Spray is the universally accepted name for any aerosol delivery product that's active ingredient is Oleoresin Capsicum or OC. OC is classified as an inflammatory agent. The word Oleoresin Capsicum is derived from:

Oleoresin - A preparation consisting essentially of oil holding resin in solution.¹

Capsicum - Any plant of the genus capsicum also called pepper.²

Therefore, Oleoresin Capsicum is the oily resin of a capsicum pepper plant.



Oleoresin Capsicum Extract in a Dish

¹ Merriam-Webster's Medical Dictionary, © 2002 Merriam-Webster, Inc.

² Merriam-Webster's Medical Dictionary, © 2002 Merriam-Webster, Inc.

Physiological Symptoms of OC Exposure

Tingling skin	Sneezing
Burning skin	Nasal irritation
Skin redness	Runny nose
Skin swelling	Increased blood pressure ³
Burning throat	Headache
Dry cough	Eye redness
Wheezing	Eye swelling
Restriction of deep lung breath	Eye burning
Gasping	Eye inflammation
Gagging	Tearing eyes
Inability to speak	Blepharospasm
Laryngospasm	Restriction of Vision

Psychological Symptoms of OC Exposure

Inward focus on pain	Anxiety
Fear	Panic
Anger	Sense of helplessness



To prevent SERIOUS INJURY:

ONLY contaminate students in training that have signed the SABRE® Contamination Waiver **AND** have obtained “fit for duty” letter from a physician. This “fit for duty” letter should confirm the student **DOES NOT** have any of the following preexisting medical conditions:

- Eye Disorders
- Epilepsy;
- Heart Problems;
- Respiratory Problems;
- Lung Problems;
- Diabetes;
- High Blood Pressure; or
- Other Medical Issues

It is the agencies’ and students’ responsibility to ensure the student’s “fit for duty” status has NOT CHANGED and no subsequent medical conditions/changes have occurred BEFORE contaminating student.

Stress, anxiety, anticipation of use, use, pain or other psychological response to contamination from SABRE® Aerosol Irritant Projectors may result in SERIOUS INJURY to some individuals, including those with the preexisting medical conditions listed above.

³ National Institute of Justice’s Pepper Spray Effects on a Suspect’s Ability to Breathe, December 2001

2.2 MEASURING OC PUNGENCY

Previous Methods of Measuring OC Pungency

OC Concentration

It is a common misconception that aerosol projector pungency can be measured or compared by OC Concentration. For example, some believe that products measuring 10% OC are automatically stronger than those which measure less than 10%. The truth is that OC percentages measure only the amount of Oleoresin contained within the formulation. OC percentages do not address the pungency of the OC, only the amount.



Scoville Heat Units (SHU's)

The Scoville Organic Test was developed by Wilbur Scoville in 1912. His method required a committee of members to taste test peppers in order to determine a pepper's pungency. Due to the subjectiveness of Scoville's taste test, SHU's are not considered to be the most accurate measure of OC pungency. Most defense sprays available today measure between 500,000 to 2,000,000 SHUs. It is important to realize SHUs measure the pungency of the OC used **before it is diluted** by the inactive ingredients, which include the carrier and propellant. SHUs in and of themselves are not an accurate measure of aerosol projector pungency.

Scoville Content

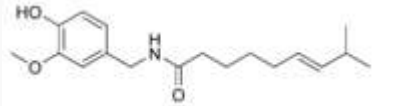
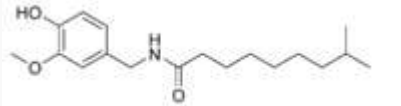
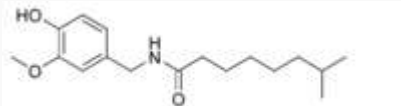
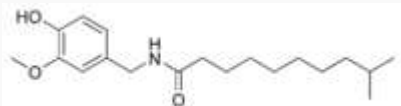
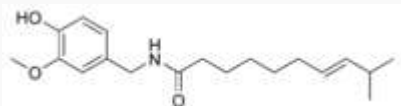
The Scoville Content of OC sprays measures the actual pungency of the entire formulation. Therefore, the Scoville Content measures the liquid, which is propelled out of the aerosol projector canister. Because this measurement takes into account the OC, carrier and propellant, it is a much more accurate measurement than either the OC concentration or SHUs. To determine the Scoville Content of a product, multiply the SHUs by the OC Concentration. (ex. 2,000,000 x 0.10 = 200,000) (ex. 2% OC - 5.3 Million SHU formulation = 5,300,000 x .02 = 106,000)

Modern Method of Measuring OC Pungency

Percentage of Major Capsaicinoids

Major Capsaicinoids are the components within red pepper which make them pungent. Therefore, the most modern and accurate way to determine the pungency of an OC spray is to determine its level of major capsaicinoids. In fact, Scoville's test was replaced by the more accurate High Performance Liquid Chromatography (HPLC), which measures the major capsaicinoids within OC sprays. Security Equipment Corporation, the Environmental Protection Agency (EPA) and Health Canada recognize the American Organization of Analytical Chemists' Method 995.03 as the latest, most accurate method to determine the major capsaicinoids level of OC products. **To accurately compare the heat level of OC sprays, compare the major capsaicinoids, not the OC percentage or SHU's.**

Major and Minor Capsaicinoids

Capsaicinoid	Abbrev .	%	Scoville heat units	Chemical structure
Capsaicin	C	69%	16,000,000	
Dihydrocapsaicin	DHC or D	22%	15,000,000	
Nordihydrocapsaicin	NDHC or N	7%	9,100,000	
Homodihydrocapsaicin	HDHC	1%	8,600,000	
Homocapsaicin	HC	1%	8,600,000	

The amount of minor capsaicinoids is so negligible that they are not measured when conducting HPLC for the purpose of formula pungency.

SABRE® OC products only use food grade peppers for the extraction of Oleoresin Capsicum. This ensures the safest product possible for law enforcement.

2.3 HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

The University of Utah conducted extensive testing on Oleoresin Capsicum Aerosol Projectors. A summary of their findings is published in the **Journal of Forensic Sciences, May 2001** in the article titled, "Quantitative Analysis of Capsaicinoids in Fresh Peppers, Oleoresin Capsicum and Pepper Spray Products" (see Appendix - A).



Here are some important facts covered within the article:

- "Capsaicinoids are the active and pain producing components of the hot pepper."
- "Capsaicinoid variability was observed from different product lots from the same manufacturers."
- "SHU values were sometimes overstated by a factor of > 100 times."
- "Variability could alter potency and ultimately jeopardize the safety and health of users and assailants."
- "Manufacturers of oleoresin capsicum and self-defense weaponry employ few, if any, analytical measures to determine the concentration of active ingredients in the product and to ensure consistent chemical composition."

Recognizing these concerns, Security Equipment Corporation purchased an in-house laboratory dedicated to performing High Performance Liquid Chromatography (HPLC) analysis on all raw OC material received from our suppliers, as well as on every formulation produced.



SEC's High Performance Liquid Chromatography for SABRE® products

For the assurance of our customers, Security Equipment Corporation does not assume the raw OC shipped is consistent with our pungency requirements. Instead, we perform HPLC analysis on every batch of OC received from our suppliers. From the results of the HPLC analysis, our chemists determine what adjustments need to be made to the quantity of active ingredient used in order to consistently provide the stated pungency level for each of our OC formulations.

In addition to testing of the raw OC, our chemists also perform HPLC analysis on the final formulation to ensure specifications are met. As a result of our in-house HPLC technology, SABRE® provides the most consistent level of pungency possible, increasing officer safety and product effectiveness allowing agencies to utilize SABRE® to their fullest capacity.

2.4 CAPSAICINOIDS

Capsaicin

By far, capsaicin is the most pungent major capsaicinoid and is often referred to as the active ingredient in Oleoresin Capsicum. The properties of capsaicin explain the majority of physiological effects in humans exposed to OC spray. It is important for SABRE® Instructors to understand how capsaicin acts on the human body to ensure a proper understanding of decontamination procedures.



Properties of Capsaicin

1) Capsaicin is Hydrophobic

Hydrophobic describes any compound that repels or is incapable of dissolving in water. Since capsaicin is a non-polar molecule, it is unable to dissolve in water which consists of polar molecules. This tension causes capsaicin to push against water in the same manner that oil will.



Physiological Effect

The body requires an aqueous layer of tears to protect the eye from drying and to wash away foreign bodies. Since the composition of tears consists of 98.2 % water⁴, when capsaicin is introduced onto the eyes, it repels the tears away from the surface. This causes an instantaneous drying of the eyes and causes an involuntary blink reflex that will automatically respond by slamming the eye lids shut to protect the eyes. Profuse lacrimation (tearing) will take place in an effort to counter the drying effect of the capsaicin.

This hyper drying affect is most noticeable during decontamination where a contaminated individual experiences the ability to keep the eyes open under water but experiences an immediate, involuntary closing when the eyes are removed from the water.

Instructor Considerations

Since capsaicin has a drying effect on the eyes, it is important that water is utilized during decontamination for the removal of the capsaicin and to assist in rehydration of the eyes. Fans or strong winds should never be used to assist in decontaminating the eyes. Using this method is counterproductive to achieving rehydration of the eyes. Along with continuing to dry the eyes, fans or strong winds can blow particles into the eyes, leading to potential injuries.

⁴ Sunita Agarwal, Athiya Agarwal, David J Apple, Lucio Buratto, (2002) “Textbook of Ophthalmology, Volume 1”, Jaypee Brothers Medical Publishers Ltd, New Delhi, India, page 43

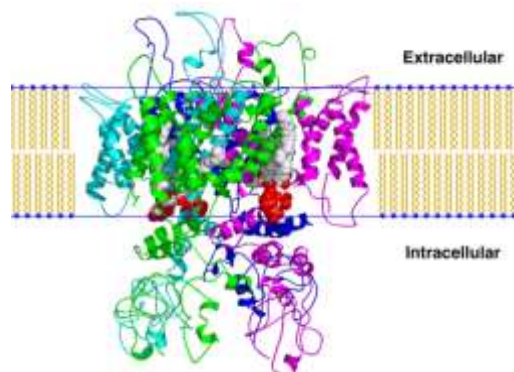
Light wind can be utilized to assist in cooling the skin and assisting with removal of dried particles from the skin. After an individual stops decontaminating with water, they should be encouraged to stand in an open area with a light breeze only. Have the student face the breeze and continuously blink the eyes to assist in natural rehydration through tearing. If tearing is not occurring, the individual should be encouraged to return to the water station and continue with water decontamination until natural tearing is observed.

Details of proper decontamination will be covered in Chapter 8.

2) Capsaicin is a Vanilloid Compound

In organic chemistry, vanillyl is a group of atoms within a molecule that are responsible for a specific type of chemical reaction. Compounds containing a vanilloid group are called vanilloids. Capsaicin is classified as a vanilloid compound.

The human nervous system contains vanilloid receptors (VR1), specifically transient receptor potential cation channel, subfamily V, member 1 (TRPV1). The activation of TRPV1 results in a painful, burning sensation. The most common activators of TRPV1 are heat greater than 43° C or capsaicin. This is why vanilloid receptors are also referred to as 'capsaicin receptors'.



Physiological Effect

When the eye and skin come in contact with capsaicin, the capsaicin stimulates the capsaicin/vanilloid receptors. As with all nerve pathways, they simply activate or do not activate. They have no means of deciphering the manner in which activation occurs and will always provide the same sensation. This is why humans feel a burning sensation as a result of contact with capsaicin, even though the nerves are not actually being burnt. Along with this is a local release of inflammatory mediators.

In recent years, scientists have begun to study the effects of capsaicin as a means to manage pain. Although capsaicin can initially cause pain stimulus, eventually the repeated activation of the vanilloid receptor depletes the neurotransmitters. Once this occurs the vanilloid receptor will no longer activate. This causes an analgesic effect, which actually reduces the sensation of pain in the affected area. This is why many sport creams utilize it as their active agent.

Instructor Consideration

Since capsaicin can produce an analgesic effect an eventual numbing of the eyes can occur. Contaminated individuals sometimes confuse the lack of pain as a sign that they are decontaminated. True decontamination is not the removal of pain, but the removal of the foreign body from the eyes and skin. Regardless of self-reported recovery, officers must ensure that proper decontamination is required to remove the capsaicin from the body. Failure to do so can result in secondary injuries that occur as a result of leaving foreign material in the eyes.



2.5 [(2-chlorophenyl)methylene] malononitrile (CS TEAR GAS)

[(2-chlorophenyl)methylene] malononitrile (CS) which is commonly referred to as tear gas, was discovered in 1928, by Ben Corson and Roger Stoughton⁵. The short form CS is derived from the names Corson and Stoughton.

CS is a white crystalline solid with a peppery odor. The microscopic particles have made it a preferred irritant for crowd management as the CS remains airborne for extended periods which enhances contamination for anyone in the immediate area.



CS is classified as a solid, not a gas, since it requires a carrying agent to disperse it into the desired target area. CS, a lacrimating irritant, immediately affects the mucous membranes, producing tears, runny nose, and persistent coughing or sneezing. Additional symptoms of exposure include respiratory tightness in the chest, a burning sensation on the skin, and a nausea or vomiting. In addition to physical effects, CS can also cause intense fear, panic, and cognitive disorientation.

The other CS Tear Gas, non-aerosol devices made by other companies are very different from the SABRE® CS Aerosol Irritant Projectors as they are pyrotechnic based delivered within smoke used in crowd management.

⁵ Corson B, & Stoughton R, Reactions of alpha, beta-unsaturated dinitriles, Journal of the American Chemical Society, 1928; 50(10), 2825-2837. Doi: 10.1021/ja01397a037

SABRE® CS Aerosol Irritant Projectors are not delivered in a gas and instead utilize either the stream or fog delivery systems. Additionally, SABRE® CS AIP can be used on individual subjects in addition to crowd management. The following SABRE® formulations use CS Tear Gas: SABRE® CS & SABRE® Advanced.

Similar to capsaicin, the molecular target of CS in the human body involves a transient receptor potential (TRP) ion channel expressed in nociceptors. Specifically, transient receptor potential cation channel, subfamily A, member 1, or (TRPA1). TRPA1 is the pain and tear inducing target of allyl isothiocyanate, which is the mustard oil found in wasabi, horseradish, and mustard⁶.

People exposed to CS Tear Gas may experience some or all of the following symptoms immediately after exposure:

- Eyes: excessive tearing, burning, blurred vision, redness
- Nose: runny nose, burning, swelling
- Mouth: burning, irritation, difficulty swallowing, drooling
- Lungs: chest tightness, coughing, choking sensation, noisy breathing (wheezing), shortness of breath
- Skin: burns, rash
- Other: nausea and vomiting

The main differences between CS & OC are as follows:

- CS is an irritant which relies on the subject to feel pain to be effective.
- OC is an inflammatory which can cause involuntary eye closure.
- CS affects TRPA1 and OC affects TRPV1.
- Police agencies began switching to OC in the early 1990s as OC was found to be more effective on subjects under the influence of alcohol and/or drugs.

⁶ Jordt, S.E., D.M. Bautista, H.H. Chuang, *et al.* 2004. Mus- tard oils and cannabinoids excite sensory nerve fibres through the TRP channel ANKTM1. *Nature* **427**: 260– 265.

The following warning applies to all SABRE® Aerosol Irritant Projectors including those containing CS Tear Gas:

⚠ WARNING

To prevent SERIOUS INJURY:
ONLY contaminate students in training that have signed the SABRE® Contamination Waiver **AND** have obtained “fit for duty” status from their agency. This “fit for duty” status should confirm the student **DOES NOT** have any of the following preexisting medical conditions:

- Eye Disorders
- Epilepsy;
- Heart Problems;
- Respiratory Problems;
- Lung Problems;
- Diabetes;
- High Blood Pressure; or
- Other Medical Issue

It is the agencies’ responsibility to ensure the student’s “fit for duty” status has NOT CHANGED and no subsequent medical conditions/changes have occurred BEFORE contaminating student.

Stress, anxiety, anticipation of use, use, pain or other psychological response to contamination from SABRE® Aerosol Irritant Projectors may result in SERIOUS INJURY to some individuals, including those with the preexisting medical conditions listed above.

2.6 SABRE® INACTIVE INGREDIENTS

All aerosol irritant projectors require inactive ingredients to assist in delivery and effectiveness of the product. Each product requires a pressurized propellant to propel the active ingredient out of the canister and a carrier to evenly suspend the active OC or CS particles in a liquid.

Dymel Propellant System

The SABRE® Dymel Propellant System (DPS) Series of AIP use pharmaceutical grade Dymel 134a/P. Dymel meets the most stringent requirements of health officials throughout the world because it is manufactured in full compliance with the US Food & Drug Administrations “current Good, Manufacturing Practices” (cGMP). DuPont began manufacturing Dymel primarily for oral sprays and nasal inhalers. Dymel is nonflammable and non-ozone depleting.

Note: SABRE® DPS Series for Europe will contain HFO 1234ze rather than HFO 134a.

Nitrogen Only Propellant

The SABRE® H2O Series uses nitrogen exclusively as the propellant. By using nitrogen as the propellant, the H2O Series provides the following advantages:

1. Nitrogen allows the stream delivery to reach twelve (12) to fifteen (15) feet or four (4) to five (5) meters.
2. Nitrogen increases the velocity of the spray pattern.
3. Nitrogen allows the H2O Series to fire effectively when exposed to zero (0) degrees Fahrenheit or –18 Celsius in a twenty-four (24) hour period.

SABRE® Carrier

The carrier is responsible for diluting the active ingredients and producing a liquid substance. The ideal carrier will allow for a homogenous solution, which prevents the canister from requiring shaking before it is used. Additionally, good, effective carriers allow the product to take effect immediately.

Whether you chose the SABRE® DPS or H2O Series, both products contain ingredients which mix completely to provide a homogenous solution. As a result, SABRE® products do not require shaking before each usage.

Like most manufacturers, SEC views the percentage of its inactive ingredients and its carriers as a trade secret as defined in Hazard Communications Act 29 CFR 1910.1200 Para 1 (1) end Appendix D to CFR 1910.1200, and does not disclose this information. Though formulations can be patented, the process requires complete disclosure of the entire formulation, and unfortunately, formulations can be very closely copied without violation of existing patents. Countless hours of research, development and laboratory testing have resulted in the creation of the SABRE® Aerosol Projectors, and this commitment to offering the industry's best products continues today. SEC is not willing to share these trade secrets with our competitors.

SEC confirms SABRE® products do not contain any chlorinated solvents which are linked to cancer. These solvents include Methylene Chloride, Tetrachloroethylene and Trichloroethylene. (See Appendix for Material Safety Data Sheets (MSDS) for an example of a chlorinated solvent.) These ingredients increase the likelihood of injuries, agency liability and negative public relations for your agency. It is strongly recommended that you take a close look at the aerosol projector's MSDS and question the manufacturer regarding the usage of any chlorinated solvents before choosing the aerosol projector for your agency.

Use the Styrofoam Cup test to determine if chlorinated solvents are within an aerosol projector.

Ultraviolet Marking Agent

The UV marking agent is a safe and effective way to invisibly mark a subject and/or their clothing. This allows for officers to identify subjects who have been sprayed for up to forty-eight (48) hours. The UV agent provides a distinct advantage if an operator deploys the product to assist in crowd management. If an offender escapes arrest due to a large crowd, the UV agent can be used as evidence linking the offender to the event.



2.7 SABRE® HIGH VISUALIZATION SYSTEM

Recognizing the benefit of the officer being able to see the formula when being deployed, SABRE® ensures that the pure, food grade Oleoresin Capsicum is allowed to retain its natural dark orange/red coloring.

This visualization process increases accuracy by allowing operators to see where the subject has been contacted by the OC formulation. This assists in identifying if the target acquisition area has been contacted and preventing cross contamination when physically controlling the subject.



It also assists in decontamination as officers can see exactly where the contamination has occurred on both skin and clothing. This will reduce the time needed for decontamination and assist in preventing re-contamination from unseen particles on the skin or clothing.

2.8 CHAPTER 2 REVIEW - QUESTIONS & ANSWERS

1. What is Oleoresin Capsicum?

The oily resin of the capsicum pepper plant.

2. What is the best measure of pungency for the OC formulation in the aerosol projector?

The percentage of major capsaicinoids.

3. What method is utilized by SEC to ensure an accurate percentage of major capsaicinoids?

High Performance Liquid Chromatography (HPLC).

4. What major capsaicinoid is considered the active ingredient in OC that causes the majority of the physiological reactions in humans?

Capsaicin.

5. Capsaicin is hydrophobic, what does hydrophobic mean?

Hydrophobic describes any compound that repels or is incapable of dissolving in water.

6. Why does capsaicin cause a burning sensation when applied to the human body?

Capsaicin stimulates human vanilloid receptors which are nerve pathways also sensitive to heat. As with all nerve pathways, they simply activate or do not activate. They have no means of deciphering the manner in which activation occurs and will always provide the same sensation. This is why humans feel a burning sensation as a result of contact with capsaicin, even though the nerves are not actually being burnt.

7. What propellant is used in SABRE®'s DPS?

Pharmaceutical grade Dymel.

8. What propellant is used in SABRE®'s H2O series?

Nitrogen only.

9. How long will the ultraviolet marking agent be present on the body after contamination?

Approximately 48 hours.

10. What creates the high visibility reddish, orange color in the SABRE® formulation?

The naturally occurring color of the food grade oleoresin capsicum.

11. What are some of the psychological effects of Aerosol Irritant Projectors?

Inward focus on pain, anxiety, fear, panic, anger & sense of helplessness

12. Which of the following apply to CS Tear Gas?

Lacrimating irritant

Classified as a solid not a gas

The molecular target involves transient receptor potential custom channel, subfamily A, member 1, or TRPA 1

Chapter 3 – SABRE® SYSTEMS

OVERVIEW

In Chapter 3, we will examine from a general perspective the common elements of all SABRE® products. This will include the available delivery systems, formulations and general safety factors. It is important for instructors to have a clear understanding of this information to assist in selecting the right formula and delivery system for their specific needs. We will also introduce SABRE® products that can be selected as a best fit for your agency's current needs. In coming chapters, the most prominent products in law enforcement will be examined in closer detail.



3.1 SABRE® LAW ENFORCEMENT FORMULATION

- Level I: **SABRE DEFENSE®**
- Level II: **SABRE 5.0® & SABRE CS®**
- Level III: **SABRE RED® & SABRE ADVANCED®**

Each level increases the amount of active ingredient found in the formula. This increases the effectiveness on the visual and respiratory system, but also can increase the potential time needed for decontamination.

Level I Options

Level I sprays provide the entry level or lowest effect on the visual and respiratory system with the advantage of the shortest decontamination period.

SABRE DEFENSE® (51 Series)

The entry level formulation consists of 10% OC measured at .33% major capsaicinoids.



Level II Options

Level II sprays are approximately twice as potent as Level I sprays providing a medium level effect on the visual and respiratory system without a significant increase to the decontamination period.

SABRE CS® (54 Series)

SABRE CS® contains 1.5% CS “Military” Tear Gas. As reported in their Edgewood Arsenal Publication, the US Department of Defense found CS to take effect quicker and be significantly more potent than CN Tear Gas.

SABRE 5.0® (56 Series)

5% OC measured at .67% major capsaicinoids, SABRE 5.0® is the midpoint between SABRE Defense® and SABRE Red®.

Level III Options

Level III sprays provide maximum effect on the visual and respiratory system but may require a longer decontamination period.

SABRE® Red H2O is the most popular product of professional law enforcement agencies. It has the highest level of major capsaicinoids.

SABRE RED® (52 Series)

With 10% Oleoresin Capsicum measuring 1.33% major capsaicinoids, SABRE RED® is SEC’s most potent formulation.

SABRE ADVANCED® (53 Series)

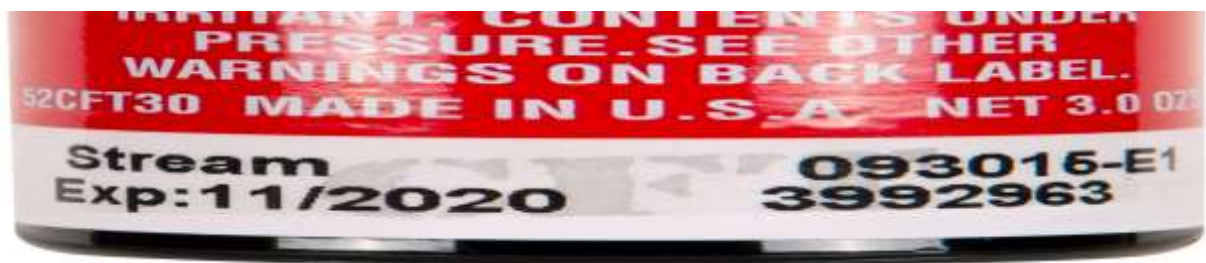
The Advanced Formulation combines the inflammatory benefits of OC with the irritant advantages of CS.



SEC AEROSOL PROJECTOR QC COMPARISON CHART

Product	Oleoresin Capsicum	SHUs	Scoville Content	Capsaicinoid Content
SABRE RED®	10%	2,000,000	200,000	1.33%
SABRE 5.0®	5%	2,000,000	100,000	.67%
SABRE DEFENSE®	10%	500,000	50,000	.33%
SABRE ADVANCED® (Includes 1.5% CS tear gas)	2.5% OC	2,000,000	50,000	.33%

3.2 CANISTER LABELING



Quality Control Identification System

DELIVERY SYSTEM	BATCH #
EXPIRATION DATE	SERIAL #

The bottom section on the front panel of every SABRE® canister contains the above white label applied with technology to resist wear. Each label contains the following information:

Delivery System – Identifies the spray pattern: stream, cone, foam, or gel.

Expiration Date – Identifies when the canister is no longer under warranty by Security Equipment Corporation. When the expiration date is reached, the canister must be taken out of service and returned to the quartermaster for proper disposal.

Batch # - Identifies the exact formulation mix within a given canister. This number matches up to a HPLC laboratory report which identifies the exact major capsaicinoids content within a given canister.

Serial # - Ensures that specific canisters can be assigned to specific officers. Assists in tracking issued canisters.

3.3 ELECTRONIC IMMOBILIZATION DEVICE COMPATIBILITY



SABRE®DPS Stream Delivery formulations are NOT IED compatible.



Any law enforcement agency currently carrying electronic immobilization devices (EID) or working alongside agencies that carry EID's should ensure that their aerosol projector system is 100% nonflammable and EID compatible. EID compatible means that formulation has been tested to resist ignition from the EID sparking.

SABRE® EID COMPATIBLE PRODUCTS

SABRE® offers an EID compatible solution in stream, foam, gel & cone.

- **All H2O Stream Delivery** (Duty Belt Projectors, MK-9, MK-46, MK-60)
- **All H2O Foam Delivery** (Duty Belt Projectors, MK-9)
- **All Gel Delivery** (Duty Belt Projectors, MK-9)
- **All DPS Cone Delivery** (Duty Belt Projectors)
- **All DPS Heavy Foggers** (MK-9)
- **All CROSSFIRE Technology Products** (Duty Belt Projectors)

SABRE® conducted the following EID compatibility tests on their entire product line:

- 16 CFR 1500.45 Flame Extension Tests
- Spraying a burning rag with the SABRE® aerosol projector to determine flammability
- Using a high voltage stun gun on a t-shirt which has been saturated with the SABRE® aerosol projector
- M26 Taser® Worst-Case-Scenario
- M26 Taser® Timed Post Exposure Test

RESULTS: All SABRE® aerosol projector formulations with the exception of the DPS stream delivery systems passed all EID compatibility testing.

Canister EID Compatibility Labeling

SABRE® clearly labels all their canisters that are Non-Flammable and Electronic Immobilization Device compatible. Operators should inspect their canister to ensure they are labeled as EID compliant if required.

Though the SABRE® DPS series has successfully passed the EPA Flame Extension Test, as cautioned, Security Equipment Corporation (SEC) does not recommend agencies use the SABRE® DPS Stream formulations in conjunction with EIDs.



(For additional information on DPS compatibility, please contact PublicSafety@SabreRed.com.)

3.4 STORAGE

- Do not expose to temperatures exceeding 120 degrees F or 48.88 degrees C.
- Aerosol projectors may lose pressure at temperatures below 32 degrees F or 0 Degrees C resulting in a decreased distance of spray pattern.
- Store in a cool, dry place at normal room temperatures.
- Shake if the canister has been in storage for a long period. Unlike other aerosol projectors, SABRE® does not require regular shaking.
- When out of storage, it is recommended that canisters be test fired annually or if any signs of possible damage.

3.5 DUTY BELT AEROSOL REPLACEMENT

Option A

Many agencies replace an officer's aerosol after a single field deployment, regardless of the total amount used.

Option B

Other agencies chose to use until the canister is half full. This requires weighing canisters after each usage. **Canisters should absolutely be replaced when they contain less than 50% of their original liquid content.** For more information email PublicSafety@SabreRed.com.

Never use expired canisters to contaminate students during training.

3.6 SABRE® DELIVERY SYSTEMS AND POINT OF AIM

SABRE® products utilize the six most popular delivery systems:

1. Stream
2. Cone / Fog
3. Phantom
4. Foam
5. Gel
6. Hose and Wand (MK-9 Cell Buster® Only)



Point of Aim

Recognizing that in a dynamic, stressful environment it is improbable if not impossible to deploy delivery systems in the same manner as spraying a static target. Even if the product is utilized properly by surprising the subject, the subject's natural reflexive actions will immediately cause the head to turn away from the spray.

This will prevent the operator from being able to apply the aerosol projector in the previously taught spray pattern method. By teaching officers point of aim, regardless of what evasive measures are taken by the subject and what position the operator finds themselves, they can deploy the aerosol projector to help maximize target acquisition.

STREAM DELIVERY

Delivery System

Stream

Point of Aim

Eyes (Spray Ear to Ear, if possible)

Primary Physiological Effect

Involuntary Closure of Eyes
 Extreme Burning Sensation of Eyes
 Extreme Burning Sensation of Skin
 Pronounced Mucus Secretion

Secondary Physiological Effect

Burning Sensation of Lungs

Primary Tactical Advantage

Interference with Vision
 Possible Inward Focus on Pain

Secondary Tactical Advantage

Interference with Deep Lung Breathing



CONE / FOG & PHANTOM DELIVERY**Delivery System**

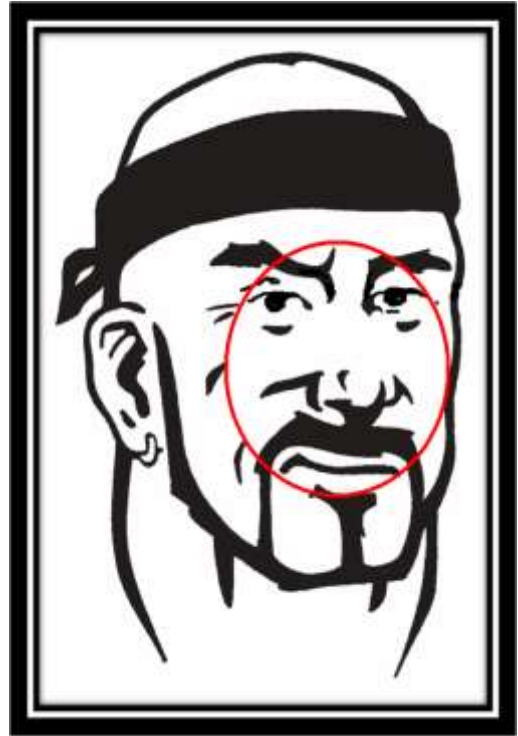
Cone / Fog & Phantom

Point of Aim

Center of Face

Primary Physiological EffectBurning Sensation in Lungs
Pronounced Mucus Secretion**Secondary Physiological Effect**Involuntary Closure of Eyes
Extreme Burning Sensation of Eyes
Extreme Burning Sensation of Skin**Primary Tactical Advantage**

Interference with Deep Lung Breathing

Secondary Tactical AdvantageInterference with Vision
Possible Inward Focus on Pain**FOAM DELIVERY****Delivery System**

Foam

Point of Aim

The eyes (Spray Ear to Ear, if possible)

Primary Physiological EffectInvoluntary Closure of Eyes
Extreme Burning Sensation of Eyes
Profuse Tearing
Pronounced Mucus Secretion**Secondary Physiological Effect**

Extreme Burning Sensation of Skin

Primary Tactical AdvantageInterference with Vision
Possible Inward Focus on Pain

GEL DELIVERY**Delivery System**

GEL

Point of Aim

The eyes (Spray Ear to Ear, if possible)

Primary Physiological Effect

Involuntary Closure of Eyes
 Extreme Burning Sensation of Eyes
 Profuse Tearing
 Pronounced Mucus Secretion

Secondary Physiological Effect

Extreme Burning Sensation of Skin

Primary Tactical Advantage

Interference with Vision
 Possible Inward Focus on Pain

**HOSE AND WAND DELIVERY****Delivery System**

Wand and Hose

Point of Aim

Area Contamination

Primary Physiological Effect

Burning Sensation in Lungs
 Pronounced Mucus Secretion

Secondary Physiological Effect

Involuntary Closure of Eyes
 Extreme Burning Sensation of Eyes
 Extreme Burning Sensation of Skin
 Profuse Tearing

Primary Tactical Advantage

Interference with Deep Lung Breathing

Secondary Tactical Advantage

Interference with Vision
 Possible Inward Focus on Pain



Hose and Wand

SABRE® Red Cell Buster



Advantages and Disadvantages of Delivery Systems



1. Stream

Advantages



- Increased range in all MK systems
- Reduced cross contamination and blow back effect
- Higher visibility due to localized volume of the product
- Best delivery system for instant eye closure

Disadvantages



- Must directly contact eyes for instantaneous effect
- Limited effect on respiratory system

2. Cone/Fog/Phantom

Advantages



- Wider spray patten in all MK systems
- Direct contact not necessary for respiratory effect
- Confined area contamination for extraction or area denial
- Disadvantages
- Less effect on vision
- Increased chance of cross contamination

Disadvantages



- Decreased effective distance when compared to stream
- Lowest visibility pattern

3. Foam

Advantages



- Reduced area contamination
- Reduced cross contamination
- High visibility pattern
- High adhesion to body
- Greater coverage area than Gel

Disadvantages



- Low effective range
- Foam can be thrown back at operator
- Diminished application in cold weather

4. Gel

Advantages



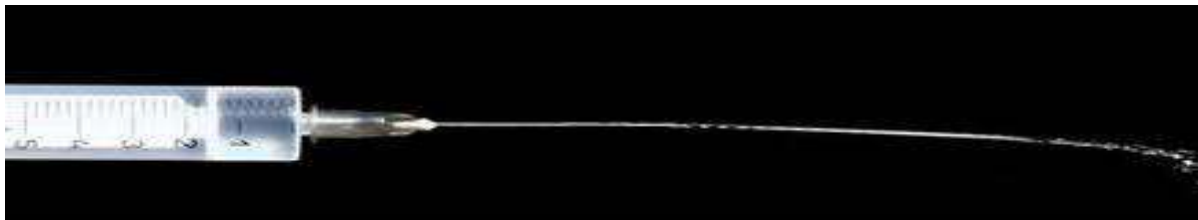
- Reduced area contamination
- Reduced cross contamination
- High visibility pattern
- High adhesion to body
- Gel cannot be thrown back at operator
- Greatest range of all Duty Belt sprays

Disadvantages



- Must directly contact eyes for instantaneous effect
- Diminished application in cold weather
- Does not run as quickly, requiring greater accuracy

3.7 MINIMUM DEPLOYMENT DISTANCES





Hydraulic Needle Effect

The hydraulic needle effect describes the mechanism in which the pressure of a moving liquid is sufficient enough to cause penetration of the skin. Depending on the size of the canister selected, the delivery system will become more pronounced. In an effort to prevent the possibility of soft tissue injury from the hydraulic needle effect, SABRE® recommends the following minimal deployment distances when tactically possible.

Operators may under some circumstance be justified in using the product at closer distances. For example, if the officer is in fear of grievous bodily harm or death, they may be justified in spraying at extremely close range if the aerosol projector is the only means at the time to ensure the officer's survival. (Note - Splash back & weapon/force option retention issues are possible when used within 3 feet/1 Meter.)

The recommended stand-off distances are a best practice approach to risk management when the aerosol projector is not being used to survive an attack capable of causing grievous bodily harm or death.

Minimum Deployment Distances

MODELS	CANISTER(S)	MINIMUM DISTANCE
MK-2, MK-2TT, MK-3, MK-3.5, MK-4, MK-6, MK-22, MK-20		3 feet/1 Meter
<p>If within 3 feet/1 meter, officer may be able to push the subject back and then spray. Otherwise, the Combat Tuck can be employed which officer pulls canister back towards chest and deploys (be careful of splash back at close range!).</p>		
MK-9/MK-21		6 feet/2 Meters
MK-46/MK-60		12 feet/4 Meters

3.8 RECOMMENDED CANISTER DISPOSAL METHODS

Expired Canister Hazardous Aerosol Waste Disposal

Expired SABRE® aerosol canisters are considered hazardous waste by the EPA. There are several options for disposing of hazardous waste:

Collection Options—Municipalities and Local Governments Facilitating Reuse, Recycling, and Proper Disposal

Permanent collection or exchange. See if your community has a facility that collects Household Hazardous Waste (HHW) year-round. Some of these facilities have exchange areas for unused or leftover paints, solvents, pesticides, cleaning and automotive products, and other materials. By taking advantage of these facilities, materials can be used by someone else, rather than being thrown away.

Special collection days. If your community does not have a year-round collection system for HHW, see if there are any designated days in your area for collecting solid waste at a central location to ensure safe management and disposal.

Local business collection sites. If your community has neither a permanent collection site nor a special collection day, you might be able to drop off certain products at local businesses for recycling or proper disposal. Some local garages, for example, may accept used motor oil for recycling.

Disposal Options Certain types of HHW have the potential to cause physical injury to sanitation workers, contaminate septic tanks or wastewater treatment systems if poured down drains or toilets, and present hazards to children and pets if left around the house. Federal law allows disposal of HHW in the trash. However, many communities have collection programs for HHW to reduce the potential harm posed by these chemicals. EPA encourages participation in these HHW collection programs rather than discarding the HHW in the trash. Call your local environmental, health, or solid waste agency for the time and location of your HHW collection program. Also, read product labels for disposal directions to reduce the risk of products exploding, igniting, leaking, mixing with other chemicals, or posing other hazards on the way to a disposal facility. Even empty containers of HHW can pose hazards because of the residual chemicals that might remain.

More information can be found on the EPA website at: <http://www.epa.gov/osw/conservematerials/hhw.htm#disposal>

For further information on proper waste disposal in your area please contact your local government offices.

Security Equipment Corporation recommends the following options for disposing of expired OC canisters.

1. Use expired cans in student training on practice targets to allow the officers to get an idea of spray pattern. Use should be limited to target practice on non-human targets. **DO NOT use expired canisters on any human subjects/students.** Dispose of empty canisters in the trash.
2. Empty expired canisters in an area not frequented by people or animals. Dispose of empty canisters in the trash.
3. Contact a Hazardous Waste company to pick up and dispose of the expired canisters.

Security Equipment Corporation recommends contacting Heritage Crystal Clean.

Heritage Crystal Clean
2175 Point Blvd, Suite 375, Elgin, IL 60123
Ph: 1-877-938-7948 • Fax: 1-847-836-5677
<http://www.crystal-clean.com/>

3.9 CHAPTER 3 REVIEW - QUESTIONS & ANSWERS

1. How many levels of formulation are sold by SABRE®?

Three (3). Level I being the lowest, to Level III being the highest.

2. What is the percentage of major capsaicinoids in Level III, SABRE® Red?

1.33% major capsaicinoids

3. How do you know if your SABRE® aerosol projector system is Electronic Immobilization Device compatible?

The canister will be labeled “Nonflammable Electronic Immobilization Device Compatible”. If there is any doubt, contact SEC.

4. What SABRE® aerosol projector system is NOT Electronic Immobilization Device compatible?

SABRE® DPS stream delivery formulations.

5. What are the six delivery systems available for SABRE® formulations?

- | | |
|--------------|--|
| ➤ Stream | ➤ Foam |
| ➤ Cone / Fog | ➤ Gel |
| ➤ Phantom | ➤ Hose and Wand (MK-9 Cell Buster® Only) |

6. What is the point of aim for the stream, foam & gel delivery system?

The eyes.

7. What is the point of aim for cone / fog and Phantom?

The center of the face.

8. What is the hose and wand delivery system primarily used for?

Area contamination.

9. What is the hydraulic needle effect?

The hydraulic needle effect describes the mechanism in which the pressure of a moving liquid is sufficient enough to cause penetration of the skin.

10. What is the minimal recommended deployment distance for the SABRE® MK-2, MK-2TT, MK-3, MK-3.5, MK-4, MK-6 canisters?

Three (3) feet (1 meter).

11. What is the minimal recommended deployment distance for the SABRE® MK-9 & MK-21 canister?

Six (6) feet (2 meters).

12. What is the minimal recommended deployment distance for the SABRE® MK-46 & MK-60 canister?

Twelve (12) feet (4 meters).

13. Which delivery systems have little to no effect on the respiratory system?

Stream, Gel & Foam

Chapter 4 – SABRE® MK-3 / MK-4

OVERVIEW

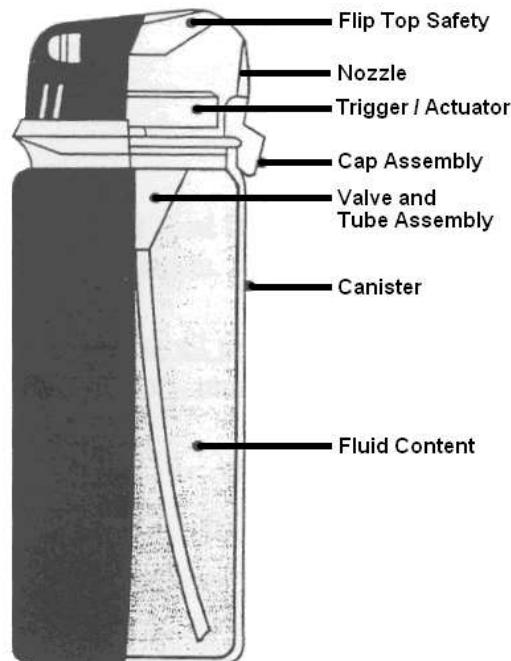
In Chapter 4, we will examine the most popular products carried by uniform officers. The MK-3 and MK-4 canisters offer an affordable, reliable, and portable solution for uniform officers. The lightweight canisters are easily carried on the officer's duty belt and provide a reliable tactical tool regardless of the officer's size or skill level. This chapter will also introduce the SABRE® Crossfire technology and the advantages gained by this system.

Note: SABRE® also provides MK-2 and MK-3.5 duty belt models as well as several detective sizes. Follow the Chapter 4 guidelines for all of the above mentioned products. (MK-3 is the most popular size for patrol officers & MK-4 is most popular for corrections officers.

4.1 NOMANCLATURE OF THE MK-3 & MK-4



MK-3
Height: 4.35 " / 10.80 cm
Diameter: 1 ½ " / 3.81 cm
Model # ends in 10.



MK-4
Height: 6 ¼ " / 15.88 cm
Diameter: 1 ½ " / 3.81 cm
Model # ends in 30

4.2 SABRE® CROSSFIRE SYSTEM



- Superior to 1st and 2nd generation Aerosol Irritant Projectors, **Crossfire**, available in stream & gel, introduces 3rd generation technology which allows SABRE® MK-3 and MK-4 canisters to deploy continuously from any position. **CROSSFIRE maximizes target acquisition!**
- Picture the face of an analog clock which displays the time through the use of fixed numbered dials and moving hands.
 - 1st generation AIP only deploy upright between the clock's 10 and 2 dials.
 - 2nd generation AIP increase target acquisition with the addition of ½ second burst deployments between the clock's 4 and 8 dials.
- The 3rd generation Crossfire will deploy continuously from any position or dial on a clock to maximize target acquisition when encountering aggressive subjects.
- Practice is required with Crossfire, as target acquisition with an inverted canister may be difficult at first. Be sure to use caution in training.



1st Generation

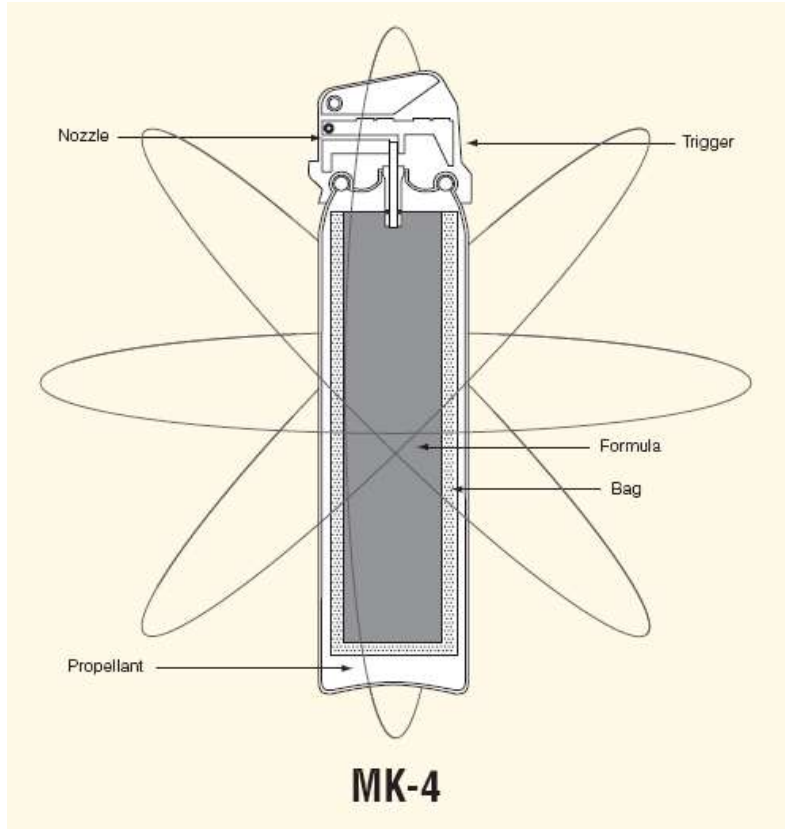


2nd Generation



3rd Generation

SABRE® Crossfire Canister Nomenclature



Size	MK-3	MK-4
Height	4.35" / 11.0 cm	6.25" / 15.87 cm
Diameter	1.50" / 3.80 cm	1.50" / 3.80 cm
Weight	1.8 oz. / 50.4 gr. / 54 ml	3.0 oz. / 85.0 gr. / 89 ml
1-Second Bursts	10	16
Warranty	5 years	
Firing Mechanism	Flip Top	
Propellant	Nitrogen	
Canister	Seamless extruded aluminum – Rated 20	

4.3 MK-3 & MK-4 PERFORMANCE SPECIFICATIONS

Delivery System	Effective Range	# of 1 sec Bursts	
		MK-3	MK-4
Stream	12 – 15 feet (4 – 5 meters)	10	18
Cone / Fog	10 – 12 feet (3 – 4 meters)	8	16
Foam	8 – 10 feet (2 – 3 meters)	10	18
Crossfire Gel	15 – 20 feet (5 – 6 meters)	8	13
Crossfire Stream	15 – 20 feet (5 – 6 meters)	10	16

4.4 SECURITY FEATURES OF THE MK-3 & MK-4

Flip Top Mechanism

The MK-3 & MK-4 canisters are the most popular systems sold by SABRE® to law enforcement officers. They utilize a Flip Top safety to assist in preventing accidental discharge. The design of the Flip Top safety provides only one way to access the actuator (trigger). The Flip Top lifts forward to allow access for the thumb. This helps the officer easily orientate the nozzle without the need to look at the canister. This provides the ability for the operator to remove and orient their aerosol projector without the need to take their eyes off of the subject or if low light conditions exist.



Trigger Top Mechanism



model numbers begin with a “7”.

The trigger top mechanism contains a break away safety. This device must be removed before the canister can be deployed for the first time. It also allows agencies to visually monitor whether or not canisters have been previously deployed. After removing the safety tab, pull inward on the trigger mechanism with the index finger to deploy the spray. The trigger top is available on SABRE® MK-2 size canisters. All trigger top

4.5 MAXIMUM LEVEL OF SUBJECT CONTAMINATION (DUTY BELT CANISTERS)

(Stream, Cone, Foam & Gel)

⚠ WARNING

DO NOT contaminate subject with more than three (3), half ($\frac{1}{2}$) to one (1) second bursts. If you are unable to restrain the subject after three (3), half ($\frac{1}{2}$) to one (1) second bursts, employ the next appropriate weapon. **DO NOT** continue to spray subject. Additionally, if another officer has already sprayed the subject with three (3), half ($\frac{1}{2}$) to one (1) second bursts, **DO NOT** spray the subject with your canister.

(Phantom)

⚠ WARNING

DIRECT CONTACT: Press actuator to fire at subject's face in one (1) to three (3) second bursts. **DO NOT** spray the subject in total for more than three (3) seconds. To stop firing, release pressure from actuator.

AREA CONTAMINATION: When used indoors, **DO NOT** use more than two (2) deployments. Both deployments should be no longer than three (3) seconds in duration for a maximum contamination of six (6) seconds. (Since MK-3 Phantom canisters empty in just three (3) seconds, maximum two (2) canisters are permitted).

DO NOT use this product in conjunction with any other Aerosol Irritant or Chemical Irritant products. **DO NOT** contaminate a subject, cell, or confined space with more than two (2) SABRE® MK-3 canisters or one (1) MK-4 canister. **DO NOT** leave subject(s) in cell or other confined space after Phantom has been deployed. After deployment and securing of canister, begin extraction process as soon as possible.

4.6 TACTICAL DEPLOYMENT OF THE MK-3 & MK-4

Draw

Most MK-3 and MK-4 holsters utilized by patrol officers are not quick draw holsters. They are primarily designed for retention. For this reason it is important that the officer remove the canister and have it in hand early in the event if they feel there may be a need to deploy their aerosol projector.

Students should be taught that if they feel in a situation that they might not be able to quickly draw the aerosol projector and use it before the assailant enters their reactionary gap, that this is an indication that the aerosol projector is not the right weapon/force option of choice at that time. Empty hand techniques or other appropriate quick draw options may be the better solution in these situations.

Grip



Although the delivery system of the MK-3 & MK-4 allows for effective deployment regardless of which grip is utilized, it is imperative that the operator grips the canister in a manner that allows them to defend themselves with empty hand tactics if required. For this reason, it is suggested that students utilize a four finger grip using the thumb on the actuator. This grip allows the operator to punch if required. This grip also increases retention.

Stance

To ensure congruency, operators should utilize the same ready stance that they are taught during all other aspects of their officer safety training. Most ready stances consist of a bladed stance with the officer's gun side to the rear and hands in an elevated ready position.

Movement

Movement is one of the most important aspects of application. Even a subject that has been sprayed or is shielding their eyes can very easily locate and attack an officer that remains still. It is imperative that the officer constantly moves and prevents being grabbed by the subject. Alternate weapons/force options systems such as the baton can aid in this endeavor.

Under stress it is most common for an unprepared individual to retreat straight backwards from an attack. This is why many instructors teach tactical "L" movements. This is where the officer begins moving backwards, then after a few steps switches the movement to the side. This is an excellent strategy to utilize if an operator is suddenly advanced on while deploying their aerosol projector, however, any movement that will prevent the operator from being grabbed is acceptable. An immediate side step is also very effective.

Concealed Grip

Since surprising the resistant individual with the application of aerosol projector will dramatically increase the likelihood of striking the appropriate point of aim, having the

aerosol projector in hand and hidden offers an extreme advantage. It is very easy to conceal the product while maintaining a natural looking stance. Students should be taught to ready their aerosol projector in a concealed grip anytime they feel the event may quickly escalate.

Application

When multiple officers are near the subject, just prior to deploying, operators should announce "Spray! Spray!" to warn other officers. It is recommended that short half (1/2) to one (1) second bursts are utilized in a broken rhythm. This makes it more difficult for the subject to predict the spray pattern, prevents emptying the aerosol projector needlessly and limits cross contamination.

Instructors should be aware that under acute stress there is a high likelihood that the operator will press and hold the actuator for lengthier periods of time. Trainers should be prepared to accept this as a realistic response when observing high stress dynamic scenarios or when conducting a use of force analysis of a real event/non-training event.

Communication



Communication Before Deployment

In order to increase the effectiveness of application, SABRE® advises operators who are justified in applying an aerosol projector NOT to warn the subject prior to deployment. Warning the subject allows them to take physical measures to defeat proper application and mentally prepare for exposure.

Communication During Deployment and Control

Operators should give loud repetitive commands once the aerosol irritant projector has been deployed and continue until the subject is restrained. Since there is a potential for a contaminated subject to inwardly focus on the pain from contamination, they may experience 'auditory exclusion' as a cognitive reaction to the pain. Auditory exclusion is described as the inability for an individual to hear. Using loud, repetitive commands increases the probability that the subject will eventually hear the commands as auditory exclusion subsides. It also ensures that the subject is clear on what direction is given by the officer. This will support the officer in showing that the subject was continuing to be resistant by not following orders. It will be further supported by potential witnesses who can give evidence that the subject was refusing to comply with orders given by the officer.

After Physically or Mechanically Restrained

Once the subject has been physically or mechanically restrained, the operator should provide reassurance to the subject that the effects are safe and temporary. They should advise that continued cooperation from the subject will assist in speeding up the decontamination process.

Dominant Hand vs. Non-Dominant Hand

Most instructors emphasize utilizing the non-dominant hand for deploying the aerosol projector. This is to ensure easy access to alternate weapon/force option systems that require the dominant hand. SABRE® agrees with this approach as it allows for the aerosol projector to be utilized in support of other weapon/force option systems. However, Instructors must appreciate that under acute stress, if the operator only draws their aerosol projector it is likely they will deploy it from their dominant hand. Again, trainers should be prepared to accept this as a realistic response when observing high stress dynamic scenarios or when conducting a use of force analysis of a real event. It is commonly observed that the operator will switch hands if another weapon/force option system is needed.

4.7 SABRE® MK-3 AND MK-4 INERT

SABRE® inert training canisters are produced in both generation 1 and generation 3 crossfire technology. Trainers should ensure that they utilize the same generation of inert training canisters as the students will be issued. This ensures the capabilities of the canister they train with will be congruent with the one they carry on duty.

Instructors should ensure that appropriate eye protection is worn by students during training with inert products. This is to reduce the possibility of injury from accidentally being sprayed at too close of a range.



All SABRE® Inert formulations are compatible for use with the Shockknife®. The Shockknife® should NOT be used in any drills where live contamination occurs with SABRE® DPS stream formulation.



SABRE® REFILLABLE INERT SYSTEM

The SABRE® Refill System allows agencies to refill all duty belt inert training units quickly and economically, thus reducing the cost and waste associated with repeated purchase of inert units. The SABRE® Refill System fills the refill canisters with distilled water and compressed air in a matter of seconds. SABRE® refill canisters can be filled up to 600 times. The SABRE® Refill System gives agencies the opportunity to provide exceptional AIP training with increased efficiency at a minimal cost.



SABRE® Refill System Model Numbers:

- SRS-01.....SABRE® Refill System
- MK-3-R.....MK-3 Inert Refillable Unit
- MK-4-R.....MK-4 Inert Refillable Unit

4.8 SABRE® MK-3 AND MK-4 INERT DRILLS

Grip and Stance - Demonstrate the proper grip and stance. Punching shields can be used to show the benefit of holding the canister properly.

Stand and Spray - Stand approximately 10 feet (3 meters) away from your partner and spray once across the eyes in a single one (1) second burst. This drill is designed to assist in teaching the proper range of the product's delivery system and introduces the student to targeting the appropriate point of aim.

Stand and Spray Against Evasive Subject - Stand approximately 10 feet (3 meters) away from your partner. When the instructor says go you will try to spray your partner in the eyes with a one (1) second burst. The attacker will duck and shield eyes. This will force the student to use the canister in a canted or inverted position. Keep in mind only SABRE® Crossfire will fire from any position.

Move and Spray Against an Attacking Subject - Stand approximately 10 feet (3 meters) away from your partner. When the attacker is ready, they will move towards the student in an attack posture. The student will move to avoid the attack while spraying the attacker across the eyes in single one (1) second bursts. As soon as the attacker breaches the reactionary gap, the officer should move to empty hand control tactics.

Move and Spray Against an Advancing Evasive Subject - Stand approximately 10 feet (3 meters) away from your partner. When the attacker is ready, they will move towards the

student trying to duck and shield their eyes as they advance. The student will move to avoid the attack while spraying the attacker across the eyes in single half ($\frac{1}{2}$) second bursts. As soon as the attacker breaches the reactionary gap, the officer should move to empty hand control tactics.

Alternate Weapons/Force options - Stand approximately 15 feet (5 meters) away from your partner. When the attacker is ready, they will turn and run away from the student. Suddenly they will turn and adopt a fighting posture. The student will quick draw their training baton, then draw their spray in the opposite hand. The student will spray the attacker from a distance, move and give commands when appropriate. SABRE® encourages the use of the Blue Baton™ expandable training baton, as it allows for safe drawing and expansion.

Multiple Assailants - This drill can be done with two or more attackers. Stand approximately 15 feet (5 meters) away from your partners. When the attackers are ready, they will turn and run away from the student. The student will draw their pepper spray while running. Suddenly they will turn and advance on the student together. The student should spray the closest attacker and move on angles to inhibit the movement of the other attacker(s). Then spray when they are in range. This drill shows the benefit of using aerosol irritant projectors on multiple assailants and the importance of constantly moving.



Ensure appropriate eye protection and safety equipment is used during all inert training drills.

4.9 CHAPTER 4 REVIEW - QUESTIONS & ANSWERS

1. Second generation aerosol projectors only fire in what positions?

From positions similar to between 10 and 2 on an analog clock while in an upright position and 4 and 8 on an analog clock while inverted, in half second bursts only.

2. SABRE®'s third generation aerosol projectors (SABRE® Crossfire) will fire from what positions?

Continuously from any position.

3. Operators should avoid deploying the MK-3 and MK-4 closer than what distance from the subject?

3 feet (1 meter).

4. What is the furthest effective range of the SABRE® MK-3 / MK-4 stream delivery system?

12 to 15 feet (4 to 5 meters) and Crossfire 15 to 20 feet (5 – 6 meters).

5. What is the effective range of the SABRE® MK-3 / MK-4 cone/fog delivery system?

10 to 12 feet (approx. 3 to 4 meters).

6. What is the effective range of the SABRE® MK-3 / MK-4 foam delivery system?

8 to 10 feet (approx. 2 to 3 meters).

7. What are the two security mechanisms available for the SABRE® MK-3 / MK-4 systems?

➤ The flip top mechanism.

➤ The trigger top mechanism.

8. What should always be worn by anyone being exposed to SABRE® Inert training products?

Appropriate eye protection.

9. What is the proper grip for a Duty Belt flip top Aerosol Irritant Projector?

Four finger grip with thumb on actuator

Chapter 5 – SABRE® MK-9 & MK-21

OVERVIEW

SABRE® MK-9 & MK-21 canisters are designed to balance portability with capability. This balance is obtained by having a light, portable canister that can carry between 16 oz and 21 oz, dependent on delivery system. They are excellent tools for crowd management, cell extraction or confined area contamination. Numerous agencies ensure that each street supervisor unit carries an MK-9. MK-9 is the more popular of the two sizes.

5.1 NOMENCLATURE OF THE MK-9 & MK-21



MK-9x is 9.25" (23.5cm) x 2.5" (6.5cm) diameter.

MK-9 is 10.5" (26.7cm) tall x 2.5" (6.5cm) diameter.

MK-21 is 12.4" (31.5cm) tall x 2.5" (6.5cm) diameter.

Note: Instructions for MK-9x are the same as the following MK-9 Instructions.

5.2 SABRE® MK-9 & MK-21 SECURITY FEATURES

Unlike smaller models, these models do not have a 'flip top' safety. To ensure that an accidental discharge does not occur, they utilize two levels of safety:

1. **Security Tab** - The first level of safety is the security tab located on the top of the trigger assembly. The security tab is a non-replaceable, composite tab that will break upon first deployment of the unit. Although it provides extra resistance, it will not completely negate the trigger from being depressed. The first deployment of the trigger by an operator will permanently break off the security tab.
2. **Safety Pin** - The removable safety pin is similar to a grenade pin. The safety pin inserts into an opening under the trigger preventing accidental depression. The pin **MUST BE REMOVED** in order to fire. The safety pin can be re-inserted at any time to assist in preventing accidental discharge. The safety pin has an elastic lanyard that assists retaining the pin for future use. Operators must be aware of this pin and ensure that a subject does not gain possession of the pin during an encounter.



WARNING

The MK-9 & MK-21 Safety Pin could potentially be used as a weapon or as a tool to facilitate escape from mechanical restraint devices. The safety pin should be securely in place any time while being transported.

Performance Specifications of the MK-9 & MK-21 (Stream & Fog Only)

Delivery System	Effective Range
Stream	Between 25 to 30 feet (8 to 10 meters)
Cone / Fog	Between 25 to 30 feet (8 to 10 meters)
Foam	Between 12 to 15 feet (4 to 5 meters)
Gel	Between 25 to 30 feet (8 to 10 meters)

5.3 RETENTION GRIP

Unlike smaller canisters, it is imperative that the operator grip both the canister and the handle at the same time.

If a subject grabs a hold of the canister, it takes minimal strength to break the canister from the upper assembly. This can cause the contents of the canister that are under pressure to expel directly into the face of the operator.

The retention grip prevents an assailant from being able to pull the canister free from the upper assembly.

5.4 DELIVERY SYSTEMS

Depending on the formulation utilized, the SABRE®'s MK-9 Canister is available in the following delivery systems (MK-21 in Stream & Fog only):

- | | |
|-----------------------------|----------------------------------|
| 1. High Volume Stream (HVS) | 5. Phantom |
| 2. Heavy Fogger | 6. Wand (Phantom Cell Buster™) |
| 3. Foam | 7. Stinger (Cell Breaching Tool) |
| 4. Gel | |

High Volume Stream (HVS)

Point of Aim: The eyes.

Safe Stand Off Distance: Minimum 6 feet (2 meters).

Individual Application: There are times when the High-Volume Stream may be utilized on a single resistant individual. This may include, but is not limited to, events where a tactical team is involved in a standoff with an individual with an edged weapon/force option or impact weapon/force option. The HVS effectively increases the range from the subject. It may also be used in a correctional setting where officers desire a direct contamination but have distance restricted because of environmental factors.

Crowd Management: The High-Volume Stream works excellent for crowd management. The compact nature allows for ease of deployment from various platforms. In situations of large crowd management, the HVS can be deployed over shields or shoulders of the front line. Operators must ensure they utilize a proper grip as discussed. It also works excellent when it can be used from an elevated position behind the front line.

The benefit with the crowd application is that the streamer can reach deeper into the crowd. This allows the ability to effectively begin the breakup of the crowd behind the front line. This can prevent the crushing effect from the crowd on each other as individuals from the front line try to escape the irritant spray but are not allowed to do so because of unaffected individuals pushing behind them.

Fogger

Point of Aim: The center of face.

Safe Stand Off Distance - Minimum 6 feet (2 meters).

Individual Application - One of the most effective uses against an individual is for open cell extraction. These events are when a resistant subject is secured in a cell space or similar small environment that is not secured by a solid door. An example may be a cell that has open bars. Since resistant subjects are often aware of tactics utilized by correctional staff, they take overt measures to try and defeat the direct application of the AIP. This may involve taking measures to hide from direct contamination of placing barriers in an effort to prevent direct contamination.

Since the fogger propels microscopic droplets, direct contamination is not needed to create the desired effect on the resistant individuals' breathing. Correctional officers must evaluate the specific environment prior to spraying to ensure that cross contamination of other areas, subjects, or staff does not occur.

Crowd Management - The fogger can be an excellent tool for crowd management as direct contamination does not have to occur to ensure effectiveness. Once wind direction and wind strength issues are taken into account, the fogger can be deployed into a crowd and have a pronounced effect on breathing. In fact, it is sometimes desirable to have less effect on the eyes of individuals in the crowd as it allows them the ability to navigate their way from the area they are obstructing.

Area Contamination - Since the atomized particles of the fogger are significantly smaller than in the stream or foam delivery system, they have a pronounced effect on the respiratory system. The microscopic particles are also more easily suspended in the air, allowing for the aerosol irritant projector to contaminate a greater area in a much quicker time.

Outdoor Application - Anytime the fogger is utilized outdoors, it is imperative that the operator takes into account wind direction and strength. The wind direction can cause unwanted cross contamination of the operator or other officers. The wind strength can rapidly remove the suspended particles from the area thereby decreasing the effectiveness of the product.

Indoor Application - Since the particles will remain suspended in the air for a longer period of time, the use of a fogger indoors can cause extreme area contamination. This may cause cross contamination to officers who may need to enter or remain in the area.

MK-9 Foam & MK-9 Gel (Not Available in MK-21)

Point of Aim - The eyes.

Safe Stand Off Distance - Minimum 6 feet (2 meters).

Individual Application: The only major advantage of the MK-9 Foam & Gel delivery system versus smaller application systems is the extended range.

Foam is notorious for having a short effective range. The MK-9 Foam delivery system extends the effective range to between 12 to 15 feet (4 to 5 meters).

The MK-9 Gel delivery system extends the effective range to 25 to 30 feet (8 to 10 meters).

Crowd Management – Foam & Gel is rarely seen as a tool for crowd management. However, there may be environmental concerns that create a need for these types of delivery systems. If area contamination is a major concern, they may be the only option if an application must occur.

Application Caution - It is possible for an individual who has been contaminated with foam to wipe off the product and throw it back at the operator or other officers. This is extremely likely in a correctional environment where subjects observe the foam being used on themselves or others and formulate a plan for any future application.

⚠ CAUTION

The high volume allows for up to 16 ounces to be deployed. This can become an extreme hazard on flooring that has the potential to become slippery. Operators must exercise caution when deploying any delivery systems, especially foam and gel, in smooth floor environments.

Maximum Level of Subject Contamination (MK-9 & MK-21 High Volume Streamer, Heavy Fogger, MK-9 Foam & MK-9 Gel)

⚠ WARNING

DO NOT contaminate subject with more than 3, ½ to 1 second bursts. If you are unable to restrain the subject after 3, ½ to 1 second bursts, employ the next appropriate weapon. **DO NOT** continue to spray subject. Additionally, if another officer has already sprayed the subject with 3, ½ to 1 second bursts, **DO NOT** spray the subject with your canister.

DO NOT use this product in conjunction with any other Aerosol Irritant or Chemical Irritant products when used for individual cell extractions. Only contaminate a subject, cell or confined space using one SABRE® product (No more than 3, ½ to 1 second bursts). **DO NOT** leave the subject in a cell or any confined space which has been contaminated by any AIP. After deployment and securing of canister, begin extraction process as soon as possible.

Before using in crowd management, ensure those in the crowd have ample exit options to help prevent trampling and other injuries. This is especially important when deploying stream and fog deliveries.

MK-9 PHANTOM

Point of Aim - The face.

Safe Stand Off Distance - Minimum 6 feet (2 meters).

Individual Application: Cell Extractions or room extractions (prior to making an entry).

Crowd Management – Not recommended

Phantom delivers microscopic droplets which dissipate quickly becoming invisible after a few feet. The main advantage is the respiratory effect on a subject and Phantom does not require extensive clean up.

**Deploy (Phantom)**

DIRECT CONTACT: Remove pin and press trigger with thumb to fire at subject's face in one (1) to three (3) second bursts. **DO NOT** spray subject in total for more than three (3) seconds. To stop firing, release pressure from trigger.

AREA CONTAMINATION: When used indoors, **DO NOT** use more than two (2) deployments. Both deployments should be no longer than three (3) seconds in duration for a maximum contamination of six (6) seconds.

DO NOT use this product in conjunction with any other Aerosol Irritant or Chemical Irritant products when used for individual cell extractions. Only contaminate a subject, cell or confined space using one SABRE® product. **DO NOT** leave subject(s) in cell or other confined space after Phantom has been deployed. After deployment and securing of Phantom, begin extraction process as soon as possible.

MK-9 Wand and Hose (Cell Buster®)

The SABRE® Red Phantom Cell Buster consists of a MK-9 with a hose and wand assembly. It is an essential tool for correctional facilities that have a need for closed cell extractions. Closed cells are described as small room environments where a solid security door is utilized. The closed security door will prevent the application of other MK-9 delivery systems. The hose and wand assembly will allow for application without the need to open the door and expose officers to the violent subject.



Cell Buster is also used by SWAT teams to extract subjects from confined areas such as bathrooms, crawl spaces or attics.



The wand has a cut away 'thumb press' that assists the operating in orienting the tip of the wand when it cannot be seen. Operators must be careful to ensure that the subject does not grab or trap the wand or hose as both can be used as a weapon/force option. The Cell Buster is best deployed with the assistance of a spotter who will advise when the subject is towards the rear of the cell. The operator should try to ensure that they do not over penetrate the wand under the door as the more length of the wand that is exposed to the subject, the greater chance they have of seizing it.

Set Up

You must attach the hose to the housing assembly of Cell Buster before deployment. Insert hose into the extraction assembly located at the canister's nozzle. Pull in opposite directions to ensure the hose is securely attached. If after pulling away from the assembly the hose comes loose, push the hose further into the assembly to ensure it locks into place. Once this is done, pull again in opposite directions to ensure hose is securely attached.

Deploy

When deploying the Cell Buster hose under a door, it is important that the tip of the wand moves past the inner edge of the door or past any barricading items such as a mattress.

If possible, slide the wand under the cell door and mattress. Remove the safety pin and press the yellow trigger with your thumb for approximately three (3) continuous seconds. Move the wand side to side while deploying. This will help prevent the subject from grabbing the wand and assists in dispersion. After deploying for approximately three (3) seconds, immediately remove the wand from the cell and wait for the product to take effect. The product should take effect almost immediately. If the desired effect is not achieved, then repeat the above process.

⚠ WARNING

DO NOT use more than two (2) deployments. Both deployments should be no longer than three (3) seconds in duration for a maximum contamination of six (6) seconds. If the subject is not demonstrating the effects of OC inhalation, (some effects may include coughing, choking, gagging, difficulty breathing, vomiting), then move to the next appropriate level of force. **DO NOT** continue to spray subject.

DO NOT use this product in conjunction with any other Aerosol Irritant or Chemical Irritant products. Only contaminate a subject, cell, or confined space using one SABRE® product. **DO NOT** leave subject(s) in cell or other confined space after Cell Buster has been deployed. After deployment and securing of Cell Buster, begin extraction process as soon as possible.

⚠ CAUTION

The hose and wand can contain residual OC after use. Allow hose and wand to drain after use to prevent officer contamination. **USE WITH CARE.** Replace hose if bent or damaged. If the hose is crimped, bent, or punctured, the Cell Buster may not deploy properly.

Cell Buster Puncture Wand



The Cell Buster Puncture Wand can replace the regular wand assembly when no suitable opening exists or a higher tactical approach is required. The Puncture Wand can puncture:

- ½ inch dry wall with insulation
- ¼ inch particle board
- Hollow interior doors
- Mattress

The puncture wand is excellent for tactical teams requiring deployment to confined areas such as attics or adjacent rooms, without the need to expose officers to problem areas.

5.5 SABRE® STINGER

The SABRE® Stinger Cell Breaching Tool reduces the need for hard entries by clearing a food/cuff port of any potential obstructions (mattress, bedding, food tray etc.). Furthermore, the SABRE® Stinger affords the operators the ability to then introduce chemical agents into a barricaded cell to safely extract a combative subject while lessening both staff & subject injuries. Measuring 42 inches (14 & 3/8 breaching shaft) in length and weighing in at approx. 38 lbs, the SABRE® Stinger is compatible with the SABRE® MK-9 Phantom Cell Buster w/ Stinger Assembly.

STG-01..... (SABRE® Stinger Cell Breaching Tool)
92PTM60-STG..... (SABRE® MK-9 Phantom Cell Buster w/
Stinger Assembly)



DEPLOY

1. Take the MK-9 with adapter and screw in the Quick Release Connector if not already attached to the MK-9 nozzle. An MK-9 with the traditional hose and wand Cell Buster adapter can also be used in the Stinger. Simply remove the quick release attachment on the end of the silver adaptor. Insert the Stinger Adaptor and tighten.



2. Insert the MK-9 canister into the Stinger's MK-9 Canister Holder at the back of the unit having the nozzle parallel to the Main Shaft.



3. Pull back on the Quick Release Connector and fit the Main Feed Line into the assembly and release to lock into place (The Stinger is now loaded and ready to be deployed).

WARNING

Avoid pulling up on Quick Release Connector. Pulling up on Quick Release Connector when connecting Feed Line to Connector may trigger an accidental discharge.

4. The Stinger is designed to be operated by a 3-officer team. Two (2) officers stand on each side, right and left, of the Stinger and grab the corresponding handles (On the right side, the officer will have their left hand on the back right grip and right hand on the shaft grip– On the left side, the officer will have their right hand on the back left grip and left hand on the shaft grip). The 3rd officer stands behind the stinger and is there to deploy the MK-9 if necessary.
5. Lift the Stinger and match the breaching plate up to the Food/Cuff Port.
6. The two officers on either side will drive the Stinger through the port to push back any items blocking/obstructing the path into the cell.
7. After clearing the Food/Cuff Port, make sure that the impact plate is flush against the cell door.
8. Once everything is cleared, the third (3rd) officer can deploy the MK-9 Canister into the cell. (The third officer must ensure the pin is removed from the MK-9 pistol grip in order to deploy.)

**⚠ WARNING**

DO NOT use more than two (2) deployments. Both deployments should be no longer than three (3) seconds in duration for a maximum contamination of six (6) seconds. If the subject is not demonstrating the effects of OC inhalation, (some effects may include coughing, choking, gagging, difficulty breathing, vomiting), then move to the next appropriate level of force. DO NOT continue to contaminate cell or confined space.

9. Pull the Stinger from the port and close.
10. Move the Stinger to a safe location once compliance has been achieved.
11. Once safe to do so, detach the MK-9 from the Main Feed Line via the quick connect and store the Stinger.

Maximum Level of Subject or Confined Area Contamination (MK-9 Phantom, Phantom Cell Buster & Stinger)

⚠ WARNING

DO NOT use more than two (2) deployments. Both deployments should be no longer than three (3) seconds in duration for a maximum contamination of six (6) seconds. If you are unable to restrain the subject after 2, 3 seconds bursts for a total of 6 seconds, employ the next appropriate weapon. **DO NOT** continue to contaminate cell or confined space.

DO NOT use this product in conjunction with any other Aerosol Irritant or Chemical Irritant products. Only contaminate a subject, cell, or confined space using one SABRE® product. **DO NOT** leave subject(s) in cell or other confined space after deployment. After deployment and securing of product, begin extraction process as soon as possible.

5.6 MK-9 INERT TRAINING

Trainers can obtain inert training products for any of the MK-9 Delivery Systems or utilize the refillable MK-9 system.

⚠ CAUTION

Trainers must ensure that anyone training with MK-9 Inert training units do not spray anyone within the safe standoff distance of 6 feet (2 meters) and that anyone being sprayed is wearing appropriate eye protection.

MK-9 High Volume Stream Refillable Inert Training Unit



The MK-9 Refillable Inert Training Kit

MK-9 refillable canister
 Refill bottle
 Plastic funnel

O-ring
 Refill Instructions

CAUTION

READ THE INSTRUCTIONS CAREFULLY PRIOR TO FILLING AND PRESSURIZING THE UNIT.

The MK-9 HVS Refillable Inert Training Unit is an excellent cost saving system for specialized crowd management units who conduct a high volume of training. The unit delivers a stream pattern to 25-30 feet (9-10 meters). This unit will provide seven (7) one second bursts before it needs refilling. It has the same firing mechanism as the non-refillable MK-9 unit.

SABRE INERT MK-9 REFILLABLE INSTRUCTIONS

The MK-9 Refillable Inert Training Unit is an excellent cost saving system for specialized crowd management units who conduct a high volume of training. The unit delivers a stream pattern to 25-30 feet (9-10 meters). This unit will provide seven (7) one second bursts before it needs refilling. It has the same firing mechanism as the non-refillable MK-9 unit.

The following items are required to fill the MK-9 Refillable unit:

- MK-9 Refill Kit
 - Air hose with air chuck - SABRE, model #: MK-46 CH
 - Nitrogen tank, CO2 tank or compressed air source
 - Pressure regulator
- The above items can be purchased from an Industrial Supply Company, Paint Ball or SCUBA store.

SABRE INERT MK-9 Refill Kit contains:

- Refill Instructions
- Plastic funnel
- Refill bottle
- Rubber O-ring

SABRE INERT MK-9 Refill Instructions



READ INSTRUCTIONS CAREFULLY, PRIOR TO FILLING AND PRESSURIZING THE UNIT. It is essential, that the user follows all safety procedures prescribed by Security Equipment Corporation.

- EYE PROTECTION REQUIRED.
- PRESSURIZE WITH NITROGEN, CO2 OR COMPRESSED AIR ONLY.
- DO NOT OVERPRESSURIZE THE DISPENSER AS IT MAY RUPTURE.
- DO NOT ATTEMPT PRESSURIZATION WITHOUT A REGULATED CHARGING SOURCE.
- DO NOT USE LOCKING TYPE INFLATION CHUCKS.

1. Ensure operator and any assistants are wearing appropriate eye protection.
2. Invert canister and depress valve lever to release all remaining pressure.
3. Making sure the dispenser has no pressure remaining, unscrew the valve head from the bottle and empty any remaining liquid.
4. Fill the empty plastic bottle in the refill kit with clean, cool water.
5. Place funnel into neck of bottle and pour contents of plastic bottle, approximately, 215 grams (7.5 ozs., 225 mL), into the funnel. ONLY FILL WITH CLEAN WATER.
6. Observe O Ring on valve. If it is warped or cracked, replace with new O Ring.
7. Place firing handle, including the valve, back onto canister and hand tighten until the handle is tightened firmly against the top of the canister.

PLEASE NOTE: THE FIRING HANDLE MUST BE TIGHTENED FIRMLY ONTO THE BOTTLE OR LEAKAGE WILL OCCUR!!!

8. Remove the protective cap from the Schrader Valve.
9. Before beginning pressurization, verify that the inflation chuck does not lock down on the stem.
10. The Inert MK-9 Refillable Canister includes a pressure gauge. **DO NOT PRESSURIZE THE UNIT PAST 250 PSI.**

NITROGEN PROPELLANT FILLING INSTRUCTIONS:

1. Open Nitrogen valve on the cylinder and **adjust the regulator to 250 PSI.**
2. Engage the air chuck and begin pressurizing for approximately 10 seconds or until the pressure has equalized. Internal pressure will reach approximately 220 PSI at which time it should stop pressurizing automatically. **If canister continues to pressurize beyond 220 PSI, stop pressurization by removing air chuck.**

⚠ WARNING NEVER EXCEED 250 PSI. WHILE PRESSURIZING, IF YOU HEAR A HISSING NOISE, STOP PRESSURIZATION.

3. If the canister is accidentally over pressurized, turn the MK-9 upside down and press the yellow lever to relieve the excess pressure.
4. Replace the protective cap on the Schrader Valve.
5. The MK-9 Refillable Training Unit is now ready to use.

CO2 PROPELLANT FILLING INSTRUCTIONS:

1. Open CO2 valve on the cylinder and **adjust the regulator to 250 PSI.**
2. Engage the air chuck and begin pressurizing for 2.5 to 3 seconds or until the pressure has equalized. Internal pressure will reach approximately 250 PSI at which time it should stop pressurizing automatically. **If canister continues to pressurize beyond 250 PSI, stop pressurization by removing air chuck.**
3. By pressurizing the canister for 2.5 to 3 seconds, approximately 12.5 grams of CO2 will be added to the canister. The MK-9 Total Filled Weight (including canister) is approximately 600 g.
4. **DO NOT FILL THE MK-9 greater than 600 g.**

⚠ WARNING NEVER EXCEED 250 PSI. WHILE PRESSURIZING, IF YOU HEAR A HISSING NOISE, STOP PRESSURIZATION.

6. If the canister is accidentally over pressurized, turn the MK-9 upside down and press the yellow lever to relieve the excess pressure.
7. Replace the protective cap on the Schrader Valve.
8. The MK-9 Refillable Training Unit is now ready to use.

COMPRESSED AIR PROPELLANT FILLING INSTRUCTIONS:

1. Open valve on the cylinder and **adjust the regulator to 250 PSI.**
2. Engage the air chuck and begin pressurizing for 10 seconds or until the pressure has equalized. Internal pressure will reach approximately 250 PSI

at which time it should stop pressurizing automatically. **If canister continues to pressurize beyond 250 PSI, stop pressurization by removing air chuck.**

⚠ WARNING NEVER EXCEED 250 PSI. WHILE PRESSURIZING, IF YOU HEAR A HISSING NOISE, STOP PRESSURIZATION.

3. If the canister is accidentally over pressurized, turn the MK-9 upside down and press the yellow lever to relieve the excess pressure.
4. Replace the protective cap on the Schrader Valve.

The MK-9 Refillable Training Unit is now ready to use

5.7 SABRE® MK-9/MK-21 AMBIDEXTROUS THIGH HOLSTER

The SABRE® MK-9/MK-21 Ambidextrous Thigh Holster is specifically designed to allow officers to carry the MK-9/MK-21 with minimal interference to movement while still allowing easy accessibility.

The MK-9/MK-21 Ambidextrous Thigh Holster features the following:

- Secure Snap Closure
- 2" Heavy Nylon Webbing
- Adjustable Height
- 1 1/2" Reversible Heavy Duty Elastic Leg Strap
- 2" Quick Disconnect Buckle Belt Mount with Hook and Loop Closure (Allowing to install Belt Mount without having to strip belt down)
- Mount
- Holster is 11 inches long
- Holster is 2 inches wide (empty) 3 inches wide with MK-9/MK-21
- Belt mount approx. 6 inches long counting female buckle



5.8 CHAPTER 5 REVIEW - QUESTIONS & ANSWERS

1. What are the two security mechanisms for the SABRE® MK-9 & MK-21?

- The security tab
- The safety pin

2. What is the effective range of the SABRE® MK-9 & MK-21 High Volume Stream & MK-9 Gel delivery system?

25 to 30 feet. (Approx. 8 to 10 meters)

3. What is the effective range of the SABRE ® MK-9 & MK-21 cone/fog delivery system?

25 to 30 feet. (Approx. 8 to 10 meters)

4. What is the effective range of the SABRE ® MK-9 foam delivery system?

12 to 15 feet. (Approx. 4 to 5 meters)

5. Why is it important to utilize the two handed retention grip while deploying the SABRE ® MK-9 & MK-21?

If the canister is not controlled properly, a subject can grab the canister and using minimal force, break it from the trigger assembly. This will cause the pressurized contents to spray into the face of the operator.

6. Operators should avoid deploying the MK-9 & MK-21 closer than what distance from the subject?

6 feet (2 meters)

7. Other than the initial breaking of the security tab, what must be removed before the MK-9 & MK-21 trigger can depress and fire?

The safety pin.

8. What part of the SABRE® Red Cell Buster has the potential of being used as a weapon/force option, if secured by the subject?

The wand & hose.

9. What is the maximum deployment permitted for Phantom, Phantom Cell Buster & Stinger?

- Phantom & Phantom Cell Buster – No More than 2, 3 Second Bursts
- Stinger with Phantom Cell Buster - No More than 2, 3 Second Bursts

Chapter 6 – SABRE® MK-46 & MK-60

OVERVIEW

SABRE® MK-46 & MK-60 Crowd Management canisters are the most effective aerosol projectors for large scale management of unruly crowds. The MK-46 & MK-60 hold approximately 3 to over 3.5 times, respectively, the fluid content of the MK-9. This allows for more subjects and larger area contamination prior to the need for refill.



6.1 MK-46 & MK-60 CROWD MANAGEMENT SYSTEM

High Volume Stream (HVS)

Point of Aim – Face & Upper Body

Safe Stand Off Distance - Minimum 12 feet (4 meters).

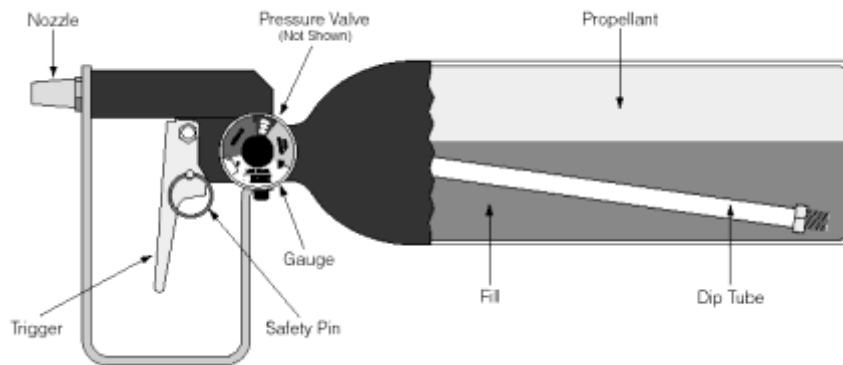
The traditional MK-46 & MK-60 Crowd Management systems are essential tools for any crowd management team. They have a range up to 30 feet (10 meters). Operators should not deploy at an individual that is closer than 12 feet (4 meters).

The design and size of the MK-46 & MK-60 limits the flexibility in delivery. This creates an optimal delivery platform that is low and hard to elevate. For this reason, during crowd management deployment it can be very advantageous for the operator to find an elevated delivery platform on which to stand. This will allow for the stream to be delivered past the front line of the crowd. Delivery behind the front line will break up the crowd and prevent trampling or squeezing when the product is delivered to the front line.

Individual Application: There are times when either the MK-46 or MK-60 High Volume Streamer may be utilized on a single resistant individual. This may include, but is not limited to, events where a tactical team is involved in a standoff with an individual with an edged weapon/force option or impact weapon/force option. The HVS effectively increases the range the officer can deploy from the subject. It may also be used in a

correctional setting where officers desire a direct contamination but because of environmental factors require an AIP with greater range.

6.2 NOMENCLATURE OF THE MK-46



6.3 SABRE® MK-46 & MK-60 SECURITY FEATURES

Safety Pin - The removable safety pin, similar to a grenade pin, is a safety pin that inserts into an opening under the trigger preventing accidental depression. The pin **MUST BE REMOVED** in order to deploy. The safety pin can be re-inserted at any time to assist in preventing accidental discharge. The safety pin has a wire lanyard that assists retaining the pin for future use. The safety pin should be securely in place any time during transport.



Trigger Guard - The MK-46 & MK-60 have a large metal brace surrounding the trigger mechanism. This bracing provides adequate room for the operator to insert their hand but is solid enough to assist in protecting the trigger from accidental discharge.

Pressure Gauge - The MK-46 & MK-60 have a pressure gauge attached to the trigger assembly. The gauge assists the operator in knowing when the canister's volume is low or almost empty. It also assists in knowing if the canister is under pressure prior to refilling. Periodically check to ensure the gauge is still in the green zone.



6.4 MK-46 & MK-60 RETENTION GRIP AND DELIVERY

The MK-46 & MK-60 utilize a shoulder strap harness to assist in deployment and security. The strap is designed to be worn over the shoulder to allow the operator to operate with a single hand. This delivery platform keeps the canister protected by tucking the canister under the operators' arm.

Prior to deployment, check the gauge and ensure there is adequate pressure and volume. Ensure the safety pin has been removed. Operators should ensure that they avoid discharging into the wind to prevent cross contamination. DO NOT discharge at ranges closer than 12 feet (4 meters) as soft body tissue damage may occur.

Note: The MK-60 comes equipped with a shoulder harness carrying system. The shoulder harness carrying system is sold separately for the MK-46.

Maximum Level of Subject Contamination (MK-46 & MK-60 High Volume Streamer)



DO NOT contaminate subject with more than three (3), half ($\frac{1}{2}$) to one (1) second bursts. Additionally, if another officer has already sprayed the subject with three (3), half ($\frac{1}{2}$) to one (1) second bursts **DO NOT** spray the subject with your canister. **DO NOT** deploy in confined spaces where crowds do not have the ability to disperse as this could lead to trampling.

6.5 MK-46 FILL AND REFILL INSTRUCTIONS

WARNING

A Charged MK-46 is under high pressure. **NEVER** unscrew a charged unit. Always ensure all pressure has been released prior to refilling the unit.

Always wear proper eye protection and rubber gloves when refilling.



WARNING

THE DISPENSER MAY RUPTURE IF OVER PRESSURIZED. DO NOT ATTEMPT PRESSURIZATION WITHOUT A REGULATED CHARGING SOURCE. **DO NOT** USE LOCKING TYPE INFLATION CHUCKS.

MK-46 Fill / Refill Instructions

11. Invert canister and depress valve lever to release all remaining pressure.
12. Make sure the dispenser has no pressure remaining. Then, unscrew the valve head from the bottle and carefully empty any remaining formulation. Dispose of remaining formulation according to local regulations.
13. Place funnel into neck of bottle and carefully pour the pre-measured contents into canister. (**NOTE:** Do not put live formulation in a unit marked for Inert.)
14. Replace O-ring on the valve and place valve back onto canister and hand tighten. Be sure to tighten firmly. (**NOTE:** If filling new hardware for the first time, the valve will already be equipped with an O-Ring.)
15. Remove the protective cap from the Schrader Valve.
16. Before beginning pressurization, verify that the inflation chuck does not lock down on the stem.
17. Turn on the nitrogen gas cylinder and adjust the regulator to approximately 250 PSI.
18. Prepare the canister for pressurization by inverting the canister.
19. Engage the air chuck and begin pressurizing. Disengage the air chuck when the needle on the gauge is in the green.



⚠ WARNING

NEVER EXCEED 300 PSI. WHILE PRESSURIZING, IF YOU HEAR A HISSING NOISE, STOP PRESSURIZATION. WHILE PRESSURIZING, IF THE GAUGE NEEDLE DOES NOT MOVE, STOP PRESSURIZATION.

20. If the canister is accidentally over pressurized, depress the valve lever while holding the canister in an inverted position to relieve the excess pressure.
21. Replace the protective cap on the Schrader Valve.
22. Mark refill date and expiry date of the OC formulation on the side of the canister.



6.6 MK-46 & MK-60 TRANSPORT AND STORAGE

Operators should ensure that the safety pin is securely in place behind the trigger prior to transporting the MK-46 & MK-60 in any vehicle. If used and not completely emptied, the unit can be stored at room temperature and may be utilized again prior to the expiration date of the OC formulation.

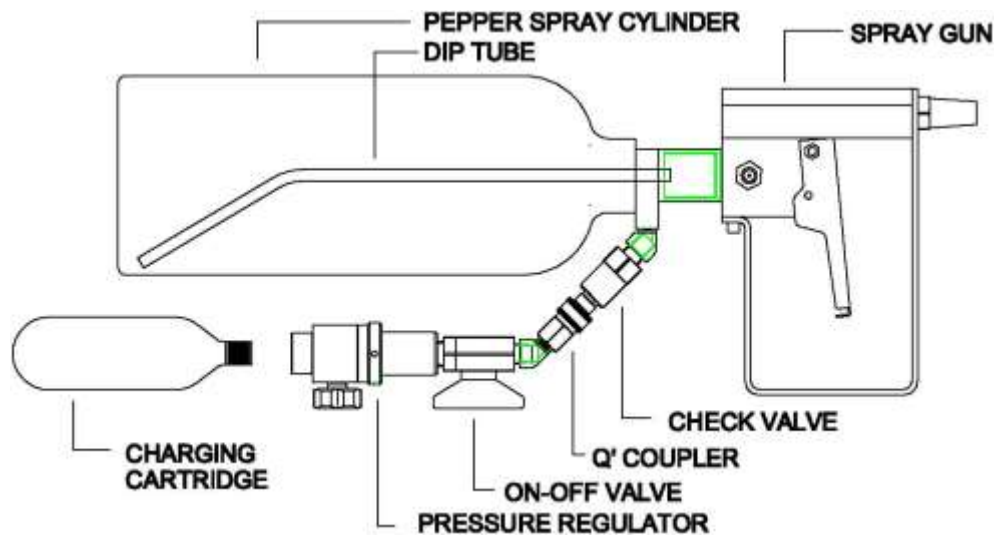
6.7 MK-60

The MK-60 provides the most advanced technology in crowd management aerosol projectors. Safer, easier, and faster to refill, the MK-60 uses an external port which allows pressurization via a premeasured nitrogen tank. This allows for refill and pressurization while on the way to a disturbance or in safe location during a disturbance allowing for multiple uses in one setting. This advanced system allows for greater content. Otherwise, the MK-60 functions the same as the MK-46 with very similar components (nomenclature).



SYSTEM	RANGE	1 SECOND BURSTS
MK-46	30 Feet / 10 Meters	15
MK-60	30 Feet / 10 Meters	30

The SABRE® MK-46 & MK-60 canisters are certified to be refilled by the Department of Transportation (DOT) for a five (5) year period.



6.8 MK-60 FILL AND REFILL INSTRUCTIONS

MK-60 FILL and PRESSURIZATION INSTRUCTIONS

The MK-60 Refill kit is required to fill and pressurize the MK-60.

The MK-60 Refill kit includes:

- MK-60 Refill Instructions
- MK-60 Refill Jug containing OC/Inert
- Rubber O-ring
- Plastic funnel
- Cylinder

SABRE® MK-60 Fill Instructions

⚠ WARNING

A Charged MK-60 is under high pressure. NEVER unscrew a charged unit. Always ensure all pressure has been released prior to refilling the unit.

Always wear proper eye protection and rubber gloves when refilling.



READ INSTRUCTIONS CAREFULLY, PRIOR TO FILLING AND PRESSURIZING THE UNIT. EYE PROTECTION AND RUBBER GLOVES REQUIRED. ONLY PRESSURIZE WITH NITROGEN CYLINDER INCLUDED IN THE REFILL KIT.

1. Invert canister and depress valve lever/trigger to release all remaining pressure.
2. Make sure the MK-60 has no pressure remaining.



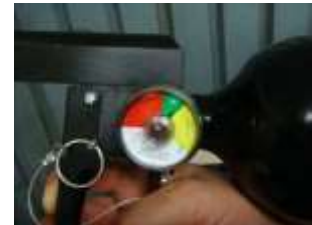
⚠ WARNING


NEVER unscrew a partially charged canister. DO NOT UNSCREW THE ROUND NECK PORTION EXTENDING FROM THE CANISTER! Unscrew the firing handle from the neck connection and carefully empty any remaining formulation. Dispose of remaining formulation.

3. Place funnel into neck of bottle and carefully pour the pre-measured contents into canister. (**NOTE:** Do not put live formulation in a unit marked for Inert.)
4. Replace O-ring on the valve neck and place valve neck back onto canister and hand tighten. Be sure to tighten firmly. (**NOTE:** if filling new hardware for the first time, the valve will already be equipped with an O-Ring.)



5. Open Velcro pouch of MK-60 holder. If a spent nitrogen cartridge is screwed into the regulator, remove the by unscrewing it.
6. Turn the black knob above the regulator perpendicular to the valve. This closes the flow of pressure from the regulator to the unit.
7. Screw a new nitrogen cartridge into the pressure regulator attached to the hose. When you puncture the seal, you will hear a hissing noise. Continue to screw in the cylinder until it is tight.
8. Turn the black knob above the regulator parallel to the valve. This will allow the nitrogen to pressurize the MK-60 canister.



 WARNING
<p>WHILE PRESSURIZING, IF YOU HEAR A HISSING NOISE, STOP PRESSURIZATION. WHILE PRESSURIZING, IF THE GAUGE NEEDLE DOES NOT MOVE, STOP PRESSURIZATION.</p>

9. If the canister is accidentally over pressurized, depress the valve lever/trigger while holding the canister in an inverted position to relieve the excess pressure.
10. Mark refill date and expiry date of the OC formulation on the side of the canister.
11. Close the Velcro pouch around the nitrogen cartridge, regulator and hose.



6.9 ADDITIONAL CROWD MANAGEMENT CONSIDERATIONS

Defense ID

SABRE®'s Defense ID is an inert marking dye that will stain the skin for up to 48 hours. This tool has a perfect application for less aggressive crowds.

Depending on your needs, SEC can offer this formulation in a variety of different canister options.

6.10 CHAPTER 6 REVIEW - QUESTIONS & ANSWERS

1. What are the three security mechanisms for the SABRE® MK-46 & MK-60?

- The safety pin.
- The trigger guard.
- The pressure gauge.

2. What is the effective range of the SABRE® MK-46 & MK-60 High Volume Stream delivery system?

Up to 30 feet (10 meters).

3. Operators should avoid deploying the MK-46 & MK-60 closer than what distance from the subject?

12 feet (4 meters).

4. The MK-46 & MK-60 shoulder harness assists in transportation and what?

Retention.

5. The operator should always check the MK-46 & MK-60 gauge to ensure it is in what color zone?

The green zone.

6. Operators should ensure they mark what on the side of the MK-46 & MK-60 canister each time it is refilled?

Mark the refill date and expiry date of the formulation on the side of the canister.

7. What should operators always ensure is in place when transporting the MK-46 & MK-60 canister in a vehicle?

The safety pin.

8. What is the maximum # of deployments per individual with a MK-46 or MK-60 Crowd Management Projector?

Three (3), half (½) to one (1) second bursts.

Chapter 7 – SABRE® PHANTOM OC AEROSOL GRENADES

OVERVIEW

SABRE® Phantom OC aerosol grenades are a cost effective and portable solution for confined area contamination. The aerosol grenades are a perfect solution for locating and motivating subjects to move from confined spaces. Since there is no time delay on deployment, students must be trained to properly control and deliver the canisters. The canister deploys microscopic droplets of Phantom OC. This will cause a burning sensation in the subject's respiratory tract and lungs, causing a feeling of shortness of breath.

7.1 NOMENCLATURE OF THE MK-3 & MK-5 AEROSOL GRENADES



MK-3/AG-PTM-10 Aerosol Grenade – Fluid content of this aerosol is 1.8 ounces/51 grams/53 ml, and empties in approximately 6 seconds. It has an approximate coverage area of 10,000 cubic feet / 283 cubic meters in 60 seconds (time will be shorter for smaller rooms).

MK-5/AG-PTM-40 Aerosol Grenade – Fluid content of this aerosol is 4 ounces/113 grams/118 ml, and empties in approximately 14 seconds. It has an approximate coverage area of 22,000 cubic feet/623 cubic meters in 60 seconds (time will be shorter for smaller rooms).

7.2 SECURITY FEATURES OF SABRE® AEROSOL GRENADES

SABRE® aerosol grenades have no delay from the moment the actuator is depressed. For this reason, it is imperative that the canister cap is not removed from the canister until the operator is ready to deploy the grenade. The cap prevents the actuator from accidentally being depressed. The cap should be in place anytime the aerosol grenade is transported.



7.3 SABRE® AEROSOL GRENADE DEPLOYMENT

For optimal deployment results, SABRE® aerosol grenade systems have the best effect when deployed indoors or in confined areas. The units are an excellent tool to drive subjects from confined areas or to assist in locating subjects potentially hiding in confined areas. Throwing an aerosol grenade into a crawl space, closet, small room, etc. prevents the officer from having to expose themselves. The MK-3 is an excellent solution for canine tracking units as they are portable and prevent having to send the canine into confined areas. Since the product consists of a nonflammable aerosol base, there is absolutely no fear of accidental fire as the result of its deployment. Operators should be aware that the aerosol grenades are not designed for large area contamination.

As the aerosol grenades immediately activate when the actuator is depressed, it is important that strict deployment guidelines are followed to prevent cross contamination. The aerosol grenades primarily affect the subject's breathing and have only a limited effect on the vision unless the fog directly sprays into the subject's eyes.

Aerosol Grenade Deployment

1. Remove protective cap.
2. Advise assisting officers that you are going to deploy the aerosol grenade.
3. Point the nozzle away from your body ensuring no assisting personnel are in line of deployment.
4. Depress the actuator and the OC should begin to disperse.
5. Immediately toss the aerosol grenade with force into the desired area.
6. Allow for contents to completely disperse from the canister and additional time for the OC to fill the area.

Maximum Level of Subject or Confined Area Contamination (MK-3 Phantom OC Aerosol Grenade AG-PTM-10)



DO NOT use more than 2 AG-PTM-10 when trying to extract a subject from a cell or similar sized confined space. If you are unable to restrain the subject after deployment of the 2nd AG-PTM-10, employ the next appropriate weapon. **DO NOT** deploy a 3rd AG-PTM-10 into the cell or confined space. Deploy the 1st AG-PTM-10 and if the desired affect is not achieved, then deploy the 2nd AG-PTM-10. **DO NOT** deploy both at the same time. The product should take effect almost immediately.

DO NOT leave the subject in a cell or any confined space which has been exposed to OC. Remove the subject from the cell or confined space as soon as safe for the officers to do so.

Additionally, before deployment of an AG-PTM-10 into the cell or confined space, check to see if an officer has already deployed an AG-PTM-10 into this space to ensure no more than 2 AG-PTM-10 are deployed into the same confined space.

Maximum Level of Subject or Confined Area Contamination (MK-5 Phantom OC Aerosol Grenade AG-PTM-40)



DO NOT use more than 1 AG-PTM-40 when trying to extract a subject from a cell or similar sized confined space. The product should take effect almost immediately. If you are unable to restrain the subject after deployment of 1 AG-PTM-40, employ the next appropriate weapon. **DO NOT** deploy a second AG-PTM-40 into the cell or confined space.

DO NOT leave the subject in a cell or any confined space which has been exposed to OC. Remove the subject from the cell or confined space as soon as safe for the officers to do so.

Additionally, before deployment of an AG-PTM-40 into the cell or confined space, check to see if an officer has already deployed an AG-PTM-10 or AG-PTM-40 into this space. **DO NOT** deploy if either the 10 or 40 have already been deployed.

7.4 CHAPTER 7 REVIEW - QUESTIONS & ANSWERS

1. SABRE® aerosol grenades come in what two sizes?

- The MK-3 with 1.8 ounces, with a deployment time of 6 seconds.
- The MK-5 with 4 ounces, with a deployment time of 14 seconds.

2. What is the only safety mechanism for the SABRE® MK-3 and MK-5 aerosol grenades?

The canister cap.

3. SABRE ® aerosol grenades primarily affect subjects in what manner?

It primarily affects a subject's breathing.

4. What is the time delay on the SABRE ® MK-3 and MK-5 aerosol grenades?

There is no delay, the formulation instantly deploys once the actuator is depressed.

5. Are the SABRE ® MK-3 and MK-5 flameless?

Yes, Making them an excellent solution for indoor deployment.

6. What is the maximum number of MK-3 & MK-5 Phantom OC Aerosol Grenades permitted for Cell Extraction?

- 2 AG-PTM-10
- 1 AG-PTM-40

Chapter 8 – SUBJECT CARE AND DECONTAMINATION

OVERVIEW

In Chapter 8, we will discuss proper subject decontamination, area decontamination, in custody deaths, use of force considerations, and use of force reporting. It is important that every agency have a policy that fits with their specific needs while still falling within the guidelines of their appropriate laws. Since it is impossible for this course to address each and every policy or use of force continuum, Instructors will be given some assistance in determining the appropriate placement of their aerosol irritant projector in their own use of force model.

8.1 SUBJECT RESTRAINT

Once the operator deploys their aerosol irritant projector, they should attempt to keep distance to allow for maximum effect of the product to occur.

LET THE PRODUCT TAKE EFFECT. DO NOT IMMEDIATELY MOVE INTO THE AREA YOU JUST CONTAMINATED!



There are several signs which identify when the product is affecting the subject:

- Eye closure/eyes clenched or squeezed shut
- Arms out to the side (trying to regain balance)
- Hands on knees
- Grimacing
- Subject makes sounds as if they are in pain
- Clenched fists
- Bent over

An effective option to help the product take effect is to yell “**OPEN YOUR EYES!**”! As the subject opens their eyes, the OC enters slamming them shut (if CS, eyes may not shut). Once it has taken effect, or the subject begins to comply with directions, it is inevitable that officers will have to move in and control the subject.

Physical control techniques are outside the scope of this course; however, the physical control techniques being taught during subject control should be the same techniques utilized once the officer has gained a tactical advantage through the use of their aerosol irritant projector. Level III Contamination exercises (see Chapter 9) will help replicate cross contamination which may be experienced in a real-world setting where area contamination is present.

Regardless of which physical control techniques are used, the keys to prevent self-contamination after deployment are:

1. Pause prior to moving in to gain control of subject.
2. Attempt to avoid areas of the subject's skin or clothing which are contaminated. (This is evident because SABRE® products contain the natural Oleoresin Capsicum pigment. **CAUTION:** SABRE® CS & Level 1 Sprays have a lower visualization process making it harder to avoid the contaminated areas of the subject.)

8.2 DEATH PROXIMAL TO RESTRAINT

Granfield, Onnen, and Petty (1994) reviewed 22 in custody deaths. Each of the in custody deaths involved a resistant individual where police utilized pepper spray as one of the control measures. They concluded that the direct cause of death was by either positional asphyxia or cocaine toxicity. None of the deaths were directly attributed to pepper spray.

Petty (2003) conducted a similar review of 63 deaths. Again, each of the deaths involved individuals who, as a result of resisting officers, were sprayed with pepper spray. The deaths were directly attributed to positional asphyxia, stimulant drug intoxication and acute heart disease. Pepper spray was not found to be the direct cause of death in any of these cases. Petty did conclude that in two of the cases involving individuals with a preexisting condition of acute asthma, pepper spray was a contributing factor leading to the death.

To our knowledge at the time of writing this manual, no reported death proximal to restraint has been directly and solely attributed to the application of an OC aerosol projector. There have been two deaths where the coroner has attributed OC as a contributing factor. For this reason, operators must take steps to minimize the risk factors associated with death proximal to restraint. The following factors can contribute to the totality of the risk of death proximal to restraint*:

**These risk factors apply regardless if the subject is restrained or not.*

Potential Contributory Factors to Death Proximal to Restraint

Positional Asphyxia

Positional asphyxia describes circumstances where the position of the body contributes to the restriction of adequate air exchange. The risk becomes more elevated by the presence of or pressure from an outside source such as an object or another person. Individuals with large pot bellies can contribute to the risk as the intestines will be forced up into the diaphragm restricting its movement.

Almost all systems of law enforcement subject control are exclusively built around the idea of getting the subject face down on the ground as quickly as possible. This is the easiest position for officers to apply handcuffs to a resisting individual and is the hardest

place for the subject to apply force to officers. This reality of restraining a resistant individual cannot be changed. However, once the subject is restrained, officers should ensure that they immediately remove any pressure off the back of the resisting individual and place them in a safe position that allows for adequate air exchange.

This usually involves turning the subject on their side in the recovery or seated position. If the subject has been restrained in a contaminated area, they should be removed from the area immediately to prevent further inhalation of the irritant.

While transporting, ensure the subject remains in a seated upright position. If possible, place the subject in an upright position and secure with appropriate seat restraint. Maintaining a dialogue during transport helps to monitor the subject's breathing.

Hogtying is when the subject's hands are bound behind their backs then attached to their feet. Although recent research has debunked the idea that hogtying can cause positional asphyxia, it is not considered best practice for restraint and may compound other existing problems.⁷



WARNING

DO NOT hogtie subjects that have been contaminated with SABRE® Aerosol Irritant Projectors. To prevent SERIOUS INJURY or DEATH, contaminated subjects:

- **MUST remain in an upright, seated position. DO NOT limit their ability to breathe in any way; and**
- **MUST be monitored to prevent positional asphyxia**

Respiratory Neck Restraints

A respiratory neck restraint refers to any physical restraint that applies direct pressure to the subject's trachea, causing partial or complete occlusion. Choking techniques are very dangerous regardless of whether an individual has been contaminated with an aerosol irritant projector. Since OC or CS particles can already affect the respiratory system, the application of a choking technique can cause significant distress.



⁷ Chan TC, Vilke GM, Neuman T, Clausen JL (1997). "Restraint Position and Positional Asphyxia". Ann Emerg Med 30 (5): 578–86

⚠ WARNING

DO NOT use Neck Restraints, Choke Holds, or Carotid Holds on subjects which have been contaminated by SABRE® aerosol irritant projectors to prevent SERIOUS INJURY or DEATHS.

Preexisting Medical Conditions

One of the most common contributing factors to death proximal to restraint is the individual having a serious preexisting medical condition.



⚠ WARNING

To prevent SERIOUS INJURY or DEATH:

IMMEDIATELY request EMS following any SABRE® Contamination if a subject is known to have or if the subject can confirm if they have any of the following preexisting medical conditions:

- Eye Disorders;
- Epilepsy;
- Heart Problems;
- Respiratory Problems;
- Lung Problems;
- Diabetes;
- High Blood Pressure; or
- Other Medical Issues.

DO NOT contaminate a subject know to have any of the above preexisting medical conditions unless necessary to protect the officer or subject. IMMEDIATELY request EMS.

In addition to the above, request EMS immediately for any of the following reasons:

- Subject is extremely intoxicated by alcohol and/or drugs.
- Subject is experiencing significant breathing difficulty.
(In many cases, normal breathing patterns can be restored by asking the subject simple questions and insisting on answers. This will distract and calm the subject.)
- Subject requests medical attention.
- Subject loses consciousness.
Apply CPR if necessary.
- Shallow breathing combined with sweating.
- Allergic Reaction (swollen lips, hives, skin blistering, difficulty breathing)

Excited Delirium Syndrome

Excited delirium Syndrome, typically described as acute exhaustive mania, has caused massive controversy in the medical community. There are those that feel the condition does not exist and should not form part of any law enforcement curriculum. This changed in October of 2009, when the American College of Emergency Physicians formally recognized excited delirium as a unique syndrome.

Researchers still do not understand why some individuals experience excited delirium while others do not experience it. They suspect stimulant drug abuse, psychiatric disease, psychiatric drug withdrawal and metabolic disorders as the underlying trigger but still do not understand the mechanisms. Regardless of the trigger, what researchers do know is that once excited delirium syndrome begins, it can ultimately lead to death.

From a risk management perspective, officers should be taught the signs and symptoms associated with excited delirium and require officers to treat the event as a medical emergency. The following is a list of the signs and symptoms of excited delirium.

Excited Delirium Signs & Symptoms⁸

- Unbelievable strength
- Imperviousness to pain
- Ability to offer effective resistance against multiple officers over an extended period of time
- Hyperthermia (temperatures can spike to between 105-113°F)
- Sweating
- Shedding clothes or nudity
- Bizarre and violent behavior
- Aggression
- Hyperactivity
- Extreme paranoia
- Incoherent shouting or nonsensical speech
- Hallucinations
- Attraction to glass and reflective objects (smashing glass is common)
- Confusion or disorientation
- Grunting or animal-like sounds while struggling with officers
- Foaming at the mouth
- Drooling
- Dilated pupils



If any of these signs or symptoms Excited Delirium are observed, IMMEDIATELY request EMS to prevent serious injury or death. Having EMS on standby is considered good practice.

Cocaine or Other Illicit Stimulant Toxicity

Ingestion of large amounts of illicit stimulants can create a state of toxicity in the body. This toxic state can cause hyperthermia, Cocaine-associated rhabdomyolysis and acidemia. Cocaine or other illicit



⁸ PAMELA KULBARSH, RN, Officer.com “**In-Custody Deaths: Excited Delirium A worst case scenario before you are even dispatched.**” March 19, 2007

stimulant toxicity is similar in presentation to the description of excited delirium, and some argue the toxicity is just the precipitator to excited delirium. Regardless, cocaine or other illicit stimulant toxicity is considered a medical emergency.



IMMEDIATELY request EMS if a subject indicates they have ingested cocaine or other illicit stimulants or if illicit stimulant toxicity is suspected to prevent SERIOUS INJURY or DEATH.

8.3 ASTHMA

There are several triggers for asthma that may occur during an encounter that does not involve the use of an aerosol irritant projector. Physical exertion and/or acute stress can trigger asthma attacks. The very nature of a violent resistant individual will typically involve both of these triggers.



Chan et al. (2000) measured pulmonary function as well as oxygen and carbon dioxide levels following oleoresin capsicum inhalation. Chan et al, found no evidence that inhalation of oleoresin capsicum resulted in any respiratory compromise in subjects with pulmonary abnormalities such as lung disease, asthma, and smoking. In fact, inhalation of oleoresin capsicum was found to increase ventilation by reducing carbon dioxide levels.⁹

REMINDER: Although pepper spray has not been found to be a direct cause of death, please refer to Petty (2003) in Chapter 8.2 above, wherein, Petty concluded that in two of the cases involving individuals with a preexisting condition of acute asthma, pepper spray was a contributing factor leading to death.



To prevent SERIOUS INJURY or DEATH:

- **IMMEDIATELY request EMS if the subject indicates they are asthmatic.**
- **DO NOT contaminate subjects known to have asthma unless necessary to protect the officer or subject. IMMEDIATELY request EMS.**

If the subject has access to an inhaler, ventilator, or other prescribed medication allow the subject to utilize their medication.

8.4 SUBJECT DECONTAMINATION

After the subject has been physically restrained, the first step in decontamination is to remove them from the contaminated area. The officer must also question and observe the subject for any medical concerns.

⁹ Chan, T., Vilke, G., Clausen, J., Clark, R., Schmidt, P., Snowden, T., and Neuman, T. (2000). **Impact of Oleoresin Capsicum Spray on Respiratory Function in Human Subjects in the Sitting and Prone Maximal Restraint Positions.** San Diego: University of California.

Once the subject is in a safe environment, decontamination can begin.

⚠ WARNING

To prevent SERIOUS INJURY or DEATH, IMMEDIATELY request EMS following any SABRE Contamination if a subject is known to have or if the subject can confirm if they have any of the following preexisting medical conditions:

- Eye Disorders;
- Epilepsy;
- Heart Problems;
- Respiratory Problems;
- Lung Problems;
- Diabetes;
- High Blood Pressure; or
- Other Medical Issues;

After restraining subject, move to fresh air away from contaminated area and verbally reassure subject before starting decontamination.


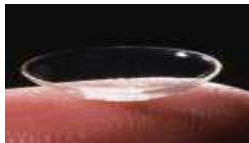
If the subject is not feeling significant relief after 45 minutes, contact EMS.

Subject Decontamination Steps

1. **Reassure Subject** - Reassure the subject that the effects are temporary and that you will assist in providing relief.
2. **Remove Any Contaminated Clothing** - If appropriate, remove any contaminated clothing and seal in a plastic bag.
3. **Clean Skin with Wet Cloth** - Any clean cloth can be soaked in cool clean water and used to wipe any visible product from the subject's skin. **DO NOT RUB THE EYES.**
4. **Provide Copious Amounts of Cool Clean Water for the Eyes and Skin** - If available, utilize a hose with cool clean water ensuring there is not too much pressure. A garden hose held upright to the sky until 1 ½ inches of water deploys will create the proper water pressure for decontamination. The hose should be held over the bridge of the nose aiming horizontally over one eye towards the outside of the face so as not to re-contaminate the other eye.
5. **Encourage Subject to Strobe Eyes** - Especially if no water source is available, eye strobing will help to speed up the recovery period by creating natural tears. Close eyes tightly and then open widely. Do not use hands to assist with opening and closing of the eyes. Only the eye muscles should be engaged to complete this process. Repeat numerous times to create a natural flow of tears to reduce dryness and irritation.

All subjects who have been contaminated by an aerosol irritant projector should be constantly monitored while in custody. The subject should begin to feel significant relief within in 20 to 30 minutes. Most effects will have completely subsided within one hour.

If the subject is incarcerated, ensure that the staff is made aware that the subject was contaminated with an aerosol irritant projector.

 WARNING	
ONLY qualified medical personnel should remove contacts to prevent SERIOUS INJURY. Contacts should be removed for proper decontamination.	

8.5 AREA DECONTAMINATION

The fact that Oleoresin Capsicum is biodegradable allows for cheap and easy area decontamination. OC is attacked by both microbial bacteria and molds that assist in degradation of the product. Research has shown that the biodegradation appears to be strongest under aerobic conditions. For this reason, areas contaminated with OC should be well ventilated allowing for both the removal of the product through air movement and degradation from exposure to air. Unlike CS or CN that will persist when trapped in clothing, furniture, and any other item capable of holding the product, OC will resolve itself through biodegradation within 10 days.

OC Area Decontamination Steps

1. If possible, open all windows and entrances to allow maximum ventilation of the area. Fans can be used to assist ventilation.
2. Vacuum any fabric-based carpet or furniture.
3. Wash any hard surfaces with soap and water.
4. Depending on the environment contaminated and level of contamination, restrict access to the area until complete decontamination is observed.

NOTE: For CS tear gas decontamination, a professional hazardous material cleaning service may be necessary for clothing, furniture, and any other item capable of holding the product.

8.6 AEROSOL IRRITANT PROJECTOR USE OF FORCE

As with every weapon/force option carried by law enforcement, the use of an aerosol irritant projector must be justified. Instructors should ensure that their agency has an existing use of force policy and that AIP are included in this policy. Regardless of what type of system is being used by the agency to assist officers in using appropriate levels of force, the authors of the agency's policy must be prepared to defend their direction on using aerosol irritant projectors.

Since there are so many variations on the placement of aerosol irritant projectors from agency to agency, SABRE® does not supply an alternate force continuum that may conflict with the agency's current policy. Any instructor needing guidance in creating or changing their policy should contact SABRE® directly for assistance. It is SABRE®'s opinion that appropriate placement of AIP should be placed above empty hand control tactics and below more aggressive weapons/force options.

It is imperative that each agency has a policy to provide direction to its members based on the specific needs of the agency as it relates to SABRE®. It is advisable to involve all stakeholders in development of policy. This may include but is not limited to agency leadership, legal counsel, subject matter experts, medical personnel, and community representatives. At a minimum, the policy should include:

- Description of approved aerosol irritant projectors
- Statement that only certified SABRE® instructors, whose certification status is current, can teach user classes
- Initial training requirements for members to use the approved aerosol irritant projectors
- Ongoing training requirements to remain qualified to use the approved aerosol irritant projectors
- Proper storage requirements & replacement requirements
- Clearly define when the use of approved aerosol irritant projectors are justified
- If the agency has a use of force continuum, identify where the aerosol irritant projector is placed on the continuum
- Clearly defined medical procedures
- Units approved to use approved aerosol irritant projectors (if required)
- Proper deployment, warning, and safety instructions

Regardless of where the agency places their SABRE® aerosol irritant projector in relation to other weapons/force options, officers must be able to clearly articulate that they precluded lower weapons/force options as being either ineffective or inappropriate for the situation.

8.7 USE OF FORCE REPORTING

Every officer is aware of the importance of properly documenting all aspects of use of force. When an officer utilizes an Aerosol Irritant Projector, it is imperative that they create a detailed documentation of the event. The following are suggested areas that should be addressed in the report:



- Information provided to officers prior to arrival.
- Officer's observation upon arrival at the scene.
- Subject's size, sex, strength, and demeanor.
- Number of subjects vs number of officers.
- Any verbal correspondence between the officers and subject prior to the physical encounter.
- Subject's reaction to verbal commands if present.
- Detailed account of aggressive body language, physical assault, or resistance by the subject.
- Any physical control techniques utilized or attempted by the officer including the Aerosol Irritant Projector.
- Subject's response to physical control techniques utilized or attempted by the officer.
- Approximately how long did the resistance last?
- Explanation of escalation and de-escalation by the officer throughout the event.
- Was subject under influence of drugs or alcohol?
- Method of physical restraint utilized.
- Any injuries to the subject(s).
- Any injuries to the officer(s).
- If subject had any preexisting medical conditions or other medical issues.
- If EMS was requested. (Time of request, reason for request and time of arrival)
- Details on time and method of transport.
- When, where, and how decontamination was conducted.
- Anything else the officer feels is important to explain the event.

Proper use of force reporting is one of the most valuable tools for protecting the officer and agency from liability.

8.8 Deployment Guidelines



ALWAYS read and follow SABRE Aerosol Irritant Projectors Instructions for proper contamination guidelines. To prevent SERIOUS INJURY or DEATH:

- **DO NOT** contaminate subject with the maximum number of bursts allowed if the subject stops resisting and/or you are able to control and restrain the subject using fewer than the maximum number of deployments permitted.
- **DO NOT** contaminate subject if they have already received the maximum number of deployments by another officer.
- **DO NOT** spray subject with multiple aerosol irritant projectors.
- **DO NOT** deploy on a subject that is operating a motor vehicle.
- **DO NOT** deploy on a subject that is in an environment that could lead to serious injury if vision becomes restricted. This includes, but is not limited to high roof tops, etc.
- **DO NOT** deploy in crowded, confined areas that could contaminate innocent parties, including but not limited to athletic events, concerts and other large venues. Consider using foam and gel products with discretion as panic and trampling could become a very serious problem!
- **DO NOT** apply Aerosol Irritant Projectors directly to eyes with a Q-tip or any other object.
- **DO NOT** deploy on children, the elderly, those known or appearing to be pregnant, or any individual with obvious signs of a medical condition.
- **DO NOT** deploy on those with a known preexisting medical condition or other medical issues unless grievous bodily harm or death is very likely to occur to either the officer or subject.
- **DO NOT** use the canister to strike vital areas of the body unless defending against a lethal force attack.
- **DO NOT** leave subjects in their contaminated cell or a confined space after an aerosol irritant projector has been deployed.
- **DO NOT** use Neck Restraints, Choke Holds, Carotid Holds on subjects after they have been contaminated by a SABRE® Aerosol Irritant Projector.
- **DO NOT** limit their ability to breathe in any way after they have been contaminated by a SABRE® Aerosol Irritant Projector.

8.9 Aerosol Irritant Projectors and Animals

Animals are similar to humans in the manner that they respond to OC contamination. If the animal is goal oriented, they will fight through the OC, if they are not goal oriented, they will typically flee. CS typically has little to no effect on animals.

Officers must be very cautious when defending against attackers armed with OC, CS, CN, or any aerosol irritant spray canisters. These canisters can also include bear spray which is significantly stronger than law enforcement grade pepper spray and deploys similar to an MK-9 fogger. (More on this in Chapter 9)

8.10 CHAPTER 8 REVIEW - QUESTIONS & ANSWERS

1. ***Has there been any reported death proximal to restraint where OC was indicated as the sole cause of death?***

No.

2. ***What are some of the potential contributing factors to death proximal to restraint?***

- Positional Asphyxia
- Respiratory Neck Restraints
- Excited Delirium Syndrome
- Preexisting Medical Conditions
- Cocaine or Other Illicit Stimulant Toxicity

3. ***What medical association recently recognized Excited Delirium as a unique syndrome?***

The American College of Emergency Physicians.

4. ***What is the first step in subject decontamination?***

Remove the subject from the contaminated area.

5. ***Who should be the only individuals allowed to remove contact lenses from a contaminated subject?***

Qualified medical personnel.

6. ***What should be done if the subject indicates they have a preexisting medical condition, show signs of medical distress or requests medical assistance?***

Immediately request the attendance of Emergency Medical Services.

7. ***What are the five steps to subject decontamination after removing the subject from the contaminated area?***

- Reassure the subject
- Remove any contaminated clothing, if appropriate
- Clean skin with a wet cloth
- Provide copious amounts of cool clean water
- Encourage subject to stroke eyes

8. ***If an area is left contaminated by OC, how long will it take for natural biodegrading to take place?***

10 days.

9. Agencies expose themselves to liability if they carry aerosol projectors without an appropriate what in place?

Use of force policy and reporting procedure.

10. Regardless of where the agency places the SABRE® aerosol irritant projector in relation to other weapons/force options, officers must be able to clearly articulate that they precluded weapons/lower force options as being what?

Either ineffective or inappropriate for the situation.

11. Unless justified and absolutely necessary, operators should not deploy Aerosol Irritant Projectors in what situations?

- On a subject that is operating a motor vehicle.
- On a subject that is in an environment that could lead to serious injury if vision becomes restricted. This includes, but is not limited to high roof tops, etc.
- In confined areas that could cause contamination of innocent parties.
- Applying OC directly to eyes with Q-tip or any other object.
- On children, the elderly, anyone known or appearing to be pregnant or individuals with obvious signs of a medical condition.
- On those with a known preexisting medical condition or other medical issues.

12. What are the other DO NOTs not listed in 8.8 designed to reduce injuries to the subject(s)?

- **DO NOT** contaminate subject with the maximum number of bursts allowed if the subject stops resisting and/or you are able to control and restrain the subject using fewer than the maximum number of deployments permitted.
- **DO NOT** contaminate subject if they have already received the maximum number of deployments by another officer.
- **DO NOT** spray subject with multiple aerosol irritant projectors.
- **DO NOT** use the canister to strike vital areas of the body unless defending against a lethal force attack.
- **DO NOT** leave subjects in their contaminated cell or a confined space after an aerosol irritant projector has been deployed.
- **DO NOT** use Neck Restraints, Choke Holds, Carotid Holds on subjects after they have been contaminated by a SABRE® Aerosol Irritant Projector.
- **DO NOT** limit their ability to breathe in any way after they have been contaminated by a SABRE® Aerosol Irritant Projector.

Chapter 9 – Student Voluntary Contamination and Decontamination

OVERVIEW

In Chapter 9, we will discuss the benefits of exposing your students to SABRE® aerosol irritant projector products. One of the most important aspects of student contamination is a safe and effective method of decontamination. Since a real possibility of self-created injury during decontamination exists, these guidelines must be followed. In this chapter, the proper protocol for: Pre spraying, Spraying, Contamination Drills, and Student Decontamination will be discussed.

SABRE® believes it is far better for an officer to experience the effects of an aerosol irritant projector in a safe, controlled environment, where all variables are controlled, then for the officer's first exposure to come on the street while under attack.

Ultimately, however, the decision as to whether to include a voluntary student contamination component into any agency training is an agency-by-agency determination over which SABRE® exercises no authority. The efficacy as to any such training as against any potential risk posed to agency participants is to be weighed and determined by the agency considering implementing a student contamination component into its training curriculum.

9.1 BENEFITS OF VOLUNTARY EXPOSURE

SABRE® encourages agencies to have their medical staffs conduct a review of Aerosol Irritant Projectors to determine the risk factors of officer contamination during training. Be sure to advise your agency's medical staff of the physiological and psychological effects of an aerosol irritant projector contamination. It is the agency's decision whether or not to conduct contamination exercises during SABRE® Aerosol Projector Training. Additionally, SABRE® highly recommends agencies always have Emergency Medical Staff present during student contaminations.

It is required that each student, recruit, cadet, training officer, or officers have received a thorough physical/medical evaluation and been deemed "fit for duty" by their agency prior to voluntary contamination during training. **This "fit for duty" status must confirm that the candidate does not have any of the "Preexisting Medical Conditions" which include Eye Disorders, Epilepsy, Heart Problems, Respiratory Problems, Lung Problems, Diabetes, High Blood Pressure, or other medical issues.**

 **WARNING**

To prevent **SERIOUS INJURY**:

ONLY contaminate students in training that have signed the **SABRE® Contamination Waiver** **AND** have obtained “fit for duty” status from their agency. This “fit for duty” status should confirm the student **DOES NOT** have any of the following preexisting medical conditions:

- Eye Disorders
- Epilepsy;
- Heart Problems;
- Respiratory Problems;
- Lung Problems;
- Diabetes;
- High Blood Pressure; or
- Other Medical Issues

It is the agencies’ and students’ responsibility to ensure the student’s “fit for duty” status has NOT CHANGED and no subsequent medical conditions/changes have occurred BEFORE contaminating student.

In addition, students with allergies to peppers, corrective eye surgery, or asthma must provide written medical clearance from their doctor to participate in a voluntary SABRE® contamination. It is SABRE®’s recommendation that any students with allergies to pepper, asthma, or students who have had corrective eye surgery do not participate in the Voluntary Contamination Training.

 **WARNING**

Individuals who might be or are pregnant SHALL NOT participate in any voluntary SABRE® contamination.

Instructors should ensure that all students are deemed eligible/medically cleared by their agency to experience the effects of their aerosol irritant projector through voluntary contamination. There are several benefits to students being contaminated in training:

1. Contamination During Training Will Help Prepare the Student to Deal with Cross Contamination During a Real World Encounter.

Cross contamination frequently occurs when aerosol irritant projectors are deployed during a real world encounter. The cross contamination can be severe in situations when an officer inadvertently sprays another officer while trying to use the product on a resisting subject.

Cross contamination can also occur by ‘splash back’ when an officer sprays a subject at close quarter and the spray ricochets back into the face or eyes of the officer.

Area contamination is a very realistic expectation anytime an aerosol irritant projector is utilized in a confined environment such as a house or apartment. The smaller irritant particles can suspend in the air. Officers entering into or who are already present in these confinements can quickly find themselves exposed to the irritant.

The most common cross contamination occurs when officers who have sprayed an individual move in to gain physical control. The close interaction will cause exposure through both transference and from irritant particles suspended in the surrounding air. Officers who have had to control a sprayed individual should ensure that they clean their hands, gloves, etc. as soon as possible after the event as touching vulnerable areas such as the eyes can cause transference contamination.

Direct exposure during training will help prepare officers to deal with all levels of cross contamination. Since the vast majority of cross contamination is not direct contamination, the officer will more easily tolerate these situations as their direct exposure during training has prepared them for the worst-case scenario.

2. Contamination During Training Will Help Prepare the Student with the Skills to Deal with an Aerosol Irritant Projector Attack from a Violent Subject.

Since aerosol irritant projectors are available commercially in North America, it is easy for anyone to purchase. Many officers across North America have been attacked with irritant spray and it appears that these officer incidents are on the rise.

“I was involved in a foot chase with a subject who was running from a break and enter. Just as I got close enough to grab the subject, he turned and sprayed me directly in the face with a ‘bear spray’. My eyes immediately slammed shut and I inhaled a breath full of the spray. The pain was excruciating. Since I had been directly exposed to OC spray during training I did not panic. I knew the effects were temporary and that the pain would quickly diminish and that my breathing would open up. I was successful in this encounter because of this. I strongly encourage every officer to expose themselves during training.”

Constable Ritchie Miller - Winnipeg Police Service



Officers may be contaminated with their Aerosol Irritant Projector if the subject is able to gain possession of the Aerosol Irritant Projector.

Officers are shown both physical and mental strategies to utilize if they are sprayed by an attacker. This includes handgun retention, calling for assistance on the radio, physical techniques, etc. During voluntary exposure during training, the officer is coached on how to employ these tactics under realistic conditions. This exercise alone may one day save the officer's life.

3. Contamination During Training Will Help Assist the Officer in Providing Evidence During Court Proceedings.

The reality of modern day policing is that officers may find their actions questioned in both criminal and civil cases. It is very powerful for the officer to explain an appreciation for the effects of aerosol irritant projectors by giving direct evidence about their own experience.

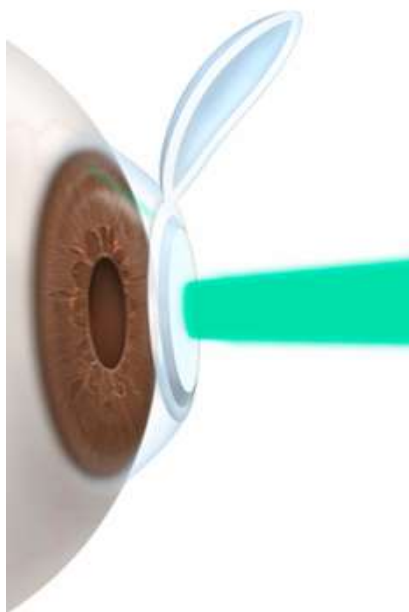
4. Contamination During Training Will Help Assist the Officer in Understanding Proper Decontamination.

Obviously, officers contaminated during training also experience the effects of proper decontamination. This includes knowing how much water is needed, what areas need special attention and how the effects can diminish, then quickly return. This assists the officer in understanding concerns that may be raised by an individual who is being decontaminated. It also allows the officer to be empathetic to a subject who is no longer resisting.

In his thesis entitled “Exposing Police to Pepper Spray in Training”, 2007, Shane R. McLaughlin related:

“The mean values of attitudinal measures were compared between officers who were exposed to pepper spray in training and officers who were not. This observation revealed that on average, officers who were exposed in training agreed more strongly with statements that are favorable toward exposure in training than officers who were not. Also, officers who were exposed in training disagreed more strongly with statements that are unfavorable toward exposure in training than officers who were not. In addition, officers who were exposed in training agreed more strongly with the statement: “using a spray in training prepares an officer for when they are exposed to pepper spray in the field” than officers who were not. Furthermore, officers who were exposed in training agreed more strongly with the statement: “using intermediate weapons/force options in training enhances an officer’s performance in the field” than officers who were not. Finally, officers who were not exposed in training agreed more strongly with the statement: “videos and lectures are effective in describing the effects of pepper spray” than officers who were.”

9.2 LASIK SURGERY AND STUDENT CONTAMINATION



In the article entitled “**Maintenance of Visual Acuity After Exposure to Oleoresin Capsicum Spray Following LASIK**”, from the Journal of Refractive Surgery (Volume 18 May/June 2002), it is stated “Since LASIK and OC exposure cause a decrease in corneal sensitivity, and the natural protection against an ocular foreign body is therefore compromised, it would be reasonable and prudent to advise against participation in such an OC training exercise for a person who is less than three months after LASIK”. (See Appendix for full article).

Due to the fact that each individual heals at an individual rate, SEC requires that students who have had LASIK surgery or another form of eye surgery wait at least double the recommended time period, or six (6) months, prior to being allowed to participate in contamination exercises. After six (6) months, you must also have written approval from your doctor to participate in the voluntary contamination exercise.

9.3 STUDENT CONTAMINATION

Each student should partner with another student. Student #1 will contaminate and decontaminate Student #2. After Student #2 has completely recovered from decontamination, then reverse roles. This strategy ensures students get the experience of deploying an Aerosol Irritant Projector and experience assisting in decontamination.

Level I Contamination - Student Contamination Steps

All students MUST have read, understood, initialed, and signed the SABRE® Contamination Waiver and have agreed to participate BEFORE they can be contaminated.

NOTE: If needed, download waiver from www.setcan.com/sabrewaiver.pdf. **DO NOT** alter or modify the SABRE® Contamination Waiver in any way.

The SABRE® Contamination Waiver **MUST** be read, understood, initialed, signed and turned in to the instructor **BEFORE** any SABRE® Contamination. It is the student's responsibility to inform the instructor if they cannot participate in any training exercise and if they have any preexisting medical conditions which would prevent student from participating in the voluntary SABRE® Contamination.



TO prevent SERIOUS INJURY:

ONLY contaminate students in training that have signed the SABRE® Contamination Waiver **AND** have obtained “fit for duty” status from their agency. This “fit for duty” status should confirm the student **DOES NOT** have any of the following preexisting medical conditions:

- Eye Disorders
- Epilepsy;
- Heart Problems;
- Respiratory Problems;
- Lung Problems;
- Diabetes;
- High Blood Pressure; or
- Other Medical Issue

It is the agencies' and students' responsibility to ensure the student's “fit for duty” status has NOT CHANGED and no subsequent medical conditions/changes have occurred BEFORE contaminating student.

1. ALWAYS check no live weapons or ammunition are present in the training area other than the Aerosol Irritant Projector(s) that will be controlled by the instructor. Conduct a safety search of students, instructors, and assistants for any live weapons or ammunition.
2. INSPECT area to ensure it is safe prior to conducting the contamination drills.
3. PREPARE any contamination drills to ensure all involved parties have appropriate safety equipment, including padding, helmets, etc.
4. PREPARE the decontamination station. Check that copious amounts of cool water are available. Run water for at least five (5) minutes to clean any debris out of the hose.
5. CONDUCT a general briefing with all students advising them of the drills, expectations of both the students that will be contaminated and the responsibilities of their partners.

NOTE: The instructor should create a diagram displaying the contamination area, where students should stand, post contamination drill areas, and decontamination area.

6. Partners will remain together until advised by the instructor that the training session has been completed.
7. When ready to contaminate the student, stand the student six (6) feet away and facing their partner. Ensure the student to be sprayed is down wind. Instruct the student to close their eyes and mouth. Hand the live Duty Belt Size Aerosol Irritant Projector to the partner and advise them to spray across their partner's eyes with a one (1) second burst.

NOTE: For Level I contaminations, use only SABRE® duty belt canisters.

8. After the product has been deployed, instruct the student to open their eyes and blink. After the contamination effects the eyes, instruct the students to begin their drills.
9. IMMEDIATELY stop the exercise if any potential danger is observed.
10. After any drills, the student partner should assist the contaminated student to the decontamination area.
11. SABRE® highly recommends Emergency Medical Staff be present during the contamination and decontamination exercises.

Level III Contamination - Student Contamination Steps

1. Follow steps 1-8 in the above Level I Contamination – Student Contamination Steps.
2. Spray confined area with a one (1) second burst from either a cone, fog, or Phantom delivery system.
3. Instruct student to walk through contaminated area and then on to the decontamination area via the assistance of their partner.
4. IMMEDIATELY stop the exercise if any potential danger is observed.
5. SABRE® highly recommends Emergency Medical Staff be present during the contamination and decontamination exercises.



DO NOT allow students to participate in both a Level I & Level III Contamination on the same day.

9.4 CONTAMINATION DRILLS

The goal should be to reinforce drills that have already been taught to students during previous training. It is highly beneficial for students to learn that they can fight through the effects and this will help assist in taking the students' focus off the pain of contamination.

There are several drills that can be constructed to imitate real world conditions for the student. It is imperative for instructors to analyze the specific events that their students are most likely to become contaminated and create a contamination exercise that replicates the situation in a realistic manner.



Each agency should have their own contamination drills based on the following:

- Type of product carried
- Other weapons/force options carried
- Radio procedures
- Use of Force policy
- Standard Working Environment
- Armed Subject Simulation

Type of Product Carried

Since the most likely cause of contamination occurs from cross contamination, students should be familiar with the effects of the specific product and delivery system they utilize. As we know, stream, cone/fog, foam, and gel all have a varied effect on different systems of the body. The student should be exposed to the product they and their fellow officers are carrying to ensure familiarity and appropriate actions to be taken if contaminated.

NOTE: For Level I contaminations, use only SABRE® duty belt canisters.

Other Weapons/Force Options Carried

Depending on the agency and job function, the officers may carry a variety of different weapons/force options. This includes, but is not limited to: Firearms, Batons, Electronic Immobilization Devices, etc.

Weapon/Force Option Deployment Drills - Instructors can design drills that incorporate the drawing, challenging and/or use of the weapon/force option. Ensure all safety protocols are utilized for any training weapons/force options used.



Firearm deployment drills should teach strategies such as 'strobing' and or the 'tactical C'. Strobing involves rapidly blinking to allow snap shot images of the environment. The tactical C (the name is derived from the fact the fingers form the shape of a C) is a more advanced measure that involves using the index finger and thumb above and below the eyelid to pry the eye open. In extreme cases, a combination of both the tactical C and strobing may be needed.



To prevent SERIOUS INJURY or DEATH:

- **Only use training weapons during contamination drills; AND**
- **DO NOT use live firearms or any other live weapons.**

Weapon/Force Option Retention Drills - Instructors can design weapon/force option retention drills for any of the weapons/force options carried. Since some of the most dangerous techniques are taught to officers for weapon/force option retention, caution must be taken to ensure that the role player is completely padded, and close safety measures are maintained.

Radio Procedures

If contaminated by an aerosol irritant projector, as soon as safely possible, the officer should utilize their radio to request assistance. Officers should convey their location, that they have been sprayed with OC, if they are injured, the number of subjects, if the subject(s) has been restrained and any other pertinent information. This drill may seem obvious or easy, however, under the stress of real exposure, even providing the simplest information can become difficult.



Use of Force Policy

Each agency typically has their own use of force policy. This policy may restrict the officer on the type of responses that their agency deems appropriate for the situation. Each instructor should ensure that the drills being taught to officers are congruent with their use of force policy.

Standard Working Environment



Each agency's work environment may be radically different. For example, correctional officers have a completely different work environment than a general patrol officer. The drills developed must take into account the environmental effect on the situation the student may find themselves in. The drills should replicate a true representation of that environment.

Armed Subject Simulation (What should an officer do when subject is armed?)

It is very advantageous for students to observe the effects of their aerosol irritant projector on an individual with an edged or impact weapon/force option. Instructors should select one or two students as examples for the entire class. Supply the student with a rubber knife or foam baton. After they have been contaminated have them find the assistant with a foam pad and have them stab or strike the pad several times. It is a beneficial exercise to show that the irritant will not physically incapacitate the individual but can provide a tactical advantage by closing the eyes of the attacker. Extreme caution should be used in these situations as Aerosol Irritant Projectors may not be an appropriate force option.



9.5 Officer Field Contamination by a Subject

Officers must be very cautious when defending against attackers armed with OC, CS, CN, or any aerosol irritant spray canisters. These canisters could include bear spray which is significantly hotter than law enforcement grade pepper spray and deploys similar to an MK-9 fogger. It is very dangerous for an officer to be contaminated by a subject as it not only gives the subject a tactical advantage but it makes it easier for the subject to potentially access the weapons/force options on the officer's duty belt.

If this happens, officers should follow these steps:

1. If you are able to close your eye and prevent eye contamination, attempt to clean the irritant off your eye lids and areas surrounding the eyes before you open your eyes. You can use your shirt sleeve to remove the irritant from the contaminated area. **DO NOT** rub eye lids if the irritant has made direct contact with your eyes.

WARNING

To prevent **SERIOUS INJURY** or **DEATH**:

- **FOCUS** on weapon retention/protecting your firearm and getting to a safe place if a contaminated subject attempts to engage you.
- **DO NOT** allow subject to take your firearm.

2. Use the Tactical C to open one eye and use your other hand to protect your firearm.
3. Once you can get to a safe place, radio for help immediately.
4. If water is available, use it to flush your eyes. Otherwise, strobe your eyes to help produce natural tears.
5. Remain clam, focus on your breathing and take slow deep breaths.

9.6 SABRE® DECON SYSTEM



It is impossible to both clean and soothe the skin with a single formula. SABRE® Decon effectively uses two unique solutions to combat the effects of chemical agents, prevents reactivation (exercising/hot showers) and further contamination of unwanted areas. **DO NOT** use **SABRE® Decon** to directly decontaminate the eyes.



SABRE® Decon Cleanse

Cleanse effectively removes OC from the skin, hair and eyebrows. It prevents additional penetration into the pores and further spreading of OC.

WARNING

DO NOT rub or pat the eyes during decontamination to prevent **SERIOUS INJURY**.

Decon Step I - Cleanse

1. Conduct an initial wash with cool, clean water. Then fill your hand with a two inch diameter supply of the Cleanse solution in the GREEN labeled bottle.
2. Wash face, hair, eyebrows (while avoiding eyelids) with large amounts of the cleanse solution until a thick soapy lather develops (scrub vigorously) about 30 seconds per application. REMEMBER, DO NOT RUB OVER YOUR EYES!
3. Rinse with cool, clean water until all soapy lather is removed, including hands.
4. Repeat Step I - Cleanse process 3-4 times or as many times as needed, over the next few minutes.
5. Rinse out eyes with cool, clean water for about 5 – 10 minutes, then go on to the Decon Step II - Soothe application.



Decon Step II – Soothe

Moistens cleansed skin treated by Step 1 and dramatically reduces burning sensation on the skin.

1. Complete instructions of Step I - Cleanse before applying Step II - Soothe.
2. Be sure to dry hands and face prior to applying Step II – Soothe.
3. Fill hand with approximately a 2 inch diameter of Decon Soothe.
4. Lightly pat the solution onto the skin. DO NOT PUT IN EYES OR RUB EYES.
5. Repeat Step II Soothe solution as it becomes dry on the skin. Some discomfort may return as the solution dries.
6. Re-apply Step II Soothe solution multiple times as required.





Individuals who might be or are pregnant **SHALL NOT** participate in any voluntary SABRE® contamination.

To prevent **SERIOUS INJURY**, **DO NOT** use SABRE® Decon products:

- If you are pregnant, nursing, or have a known sensitivity to aspirin containing products;
- If female subjects confirm they are pregnant, nursing, or have a known sensitivity to aspirin containing products when asked following contamination;
- On children; or
- Beyond the expiration date



Field Treatment Models



Ideal compact size for usage on officers and subjects after deploying chemical agents to control subjects (Cruisers, In-Take Areas, Arsenal Room, EMS). Decons approximately six people. Two year shelf life.

SD-40 4.0 oz CLEANSE – STEP I & 4.0 oz SOOTHE – STEP II
 SDC-40 4.0 oz CLEANSE – STEP I formula
 SDS-40 4.0 oz SOOTHE – STEP II formula

Training Treatment Models



Ideal large size for decontaminating multiple students, recruits, or in-service officers after chemical agents contamination drills (Training Academies). Decontaminates approximately 200 people. Two year shelf life.

SD-1G 1 Gallon CLEANSE – STEP I & 1 Gallon SOOTHE STEP II
 SDC-1G 1 Gallon CLEANSE – STEP I formula
 SDS-1G 1 Gallon SOOTHE – STEP II formula

9.7 PROPER STUDENT DECONTAMINATION



If a student is not decontaminated properly there exists a very real possibility of bodily injury. As we learned in Chapter 2, the capsaicinoids will hyper dry the eye. For this reason, copious amounts of cool clean water should be utilized to flush the eye and ensure hydration. Although saline is the best solution for decontaminating the eyes, water is also extremely effective and a more reasonable approach for officers.

<p>⚠ WARNING</p> <p>DO NOT use fans to assist during decontamination to prevent SERIOUS INJURY. Fans can exacerbate the drying effect on the eyes and result in injury.</p>

You should have members of your team available to assist you on this day, so that you are not alone to handle everything being done. It is recommended to have a minimum of six (6) staff members, both male and female, who are familiar with the decontamination process (more if you have extremely large classes). It is important that you have female staff present if you have female students.

One of the simplest methods of ensuring all aspects of decontamination occur in a safe and effective manner is the utilization of decontamination stations.

Decontamination Stations


Station One – This is for the immediate rinsing of the face to remove excess irritant from the skin. Conduct SABRE® DECON - Cleanse – Step I.

Station Two – Thoroughly rinse entire head, hair, eyebrows, face and ensure each eye receives cool clean water for at least five minutes per eye. Hold the hose over the bridge of the nose aiming away from the opposite eye. This prevents further contamination of the opposite eye.

Station Three - This station is to make sure the student is feeling relief of the burning sensation of the skin and to help apply SABRE® Soothe (follow directions on SABRE® Soothe label). Once the student is feeling better, they will be led inside to change into dry clothing at this station. This will help to prevent hypothermia, especially during the winter months. (If possible, on cold days, position all decontamination stations inside and ensure student is safely escorted inside to Station One. Be sure students place their dry clothing in Station Three prior to contaminations).

Station Four – This is a designated area for students to walk around and allow fresh air to assist in further decontamination. They should remain with their partner at all times. The students should not be allowed to leave this area until an instructor has examined them and is satisfied, they have been appropriately decontaminated.

All students who have been contaminated and decontaminated must be inspected by an instructor prior to being allowed to leave the area or operate a motor vehicle.

 **WARNING**

DO NOT rub or pat eyes during decontamination to prevent SERIOUS INJURY.

ADVISE students not to rub their eyes for the remainder of that day and when waking up the day following contamination.

OC is considered a foreign substance by the body. If any particles remain in the eye there remains the possibility that the body may react by producing more rheum (ground) in the eyes. Excessive rheum has a tendency to cause crusting in the eyes. Rubbing the eyes with this crust present may cause superficial injury to the outer eye.



Ultimately, it is the individual who is contaminated that can provide the best feedback as to their level of contamination. If the student requests more water, they should be allowed access by the instructor. Allow your students access to water until they begin producing their own natural tears to hydrate their eyes.

9.8 Other SABRE® Available Decon Solutions

SABRE® Decon Aerosol

The SABRE® Decon 1.8 oz Aerosol Spray is an aerosol mist containing saline solution. The spray helps remove particulate matter and irritating chemicals from the eyes. It may be used as a wash to reduce irritation from tear gas, OC pepper spray and other chemicals.



SDAMK3.....SABRE® 1.8 oz Decon Aerosol
 SDA-MK-9.....SABRE® 12.0 oz Decon Aerosol

SABRE® Eye Wash Adapter

The SABRE® Eye Wash Adapter turns most water bottles into an eye wash device. Simply screw on the Eye Wash Adapter onto the neck of a standard plastic water bottle. Great for first aid kits, squad cars and aerosol training amongst numerous other applications.



EWD01.....SABRE® Eye Wash Adapter

9.9 CHAPTER 9 REVIEW - QUESTIONS & ANSWERS

1. What are the four benefits of voluntary exposure for students?

- Contamination during training will help prepare the student to deal with cross contamination during a real-world encounter.
- Contamination during training will help prepare the student with skills to deal with an OC attack from violent subject.
- Contamination during training will help assist the officer in providing evidence during court proceedings.
- Contamination during training will help assist the officer in understanding proper decontamination.

2. What should be signed by all students prior to being exposed to SABRE® Aerosol Irritant Projectors?

SABRE® Contamination Waiver – SABRE® Disclosure, Assumption of Risk and Release from Liability. (www.setcan.com/sabrewaiver.pdf)

3. What factors should be considered by the instructor when designing contamination drills for their students?

- Type of product carried
- Other weapons/force options carried
- Radio procedures
- Use of Force policy
- Standard Working Environment

4. Why should the instructor consider having a student participate in an armed subject simulation drill during exposure?

To show the limiting physical incapacitation effects of aerosol irritant spray.

5. SABRE® Decon products are designed to only be used on what part of the body?

The skin. Do not use product in the eyes.

6. Who is ultimately the best judge of whether a student is decontaminated?

The contaminated student.

7. After saline solution, what is the most effective substance for decontamination of the eyes?

Cool, clean water.

8. How long should a student wait after having LASIK eye surgery before voluntary exposure?

Six months

9. SABRE® Decon should never be used on whom?

- Children.
- Anyone pregnant or nursing.

10. What must all students obtain prior to participating in the SABRE® voluntary contamination exercises?

⚠ WARNING

To prevent SERIOUS INJURY:
ONLY contaminate students in training that have signed the SABRE® Contamination Waiver **AND** have obtained “fit for duty” letter from a physician. This “fit for duty” letter should confirm the student **DOES NOT** have any of the following preexisting medical conditions:

<ul style="list-style-type: none"> • Eye Disorders • Epilepsy; • Heart Problems; • Respiratory Problems; 	<ul style="list-style-type: none"> • Lung Problems; • Diabetes; • High Blood Pressure; or • Other Medical Issues
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It is the agencies’ and students’ responsibility to ensure the student’s “fit for duty” status has NOT CHANGED and no subsequent medical conditions/changes have occurred BEFORE contaminating student.

In addition, students with allergies to peppers, corrective eye surgery, or asthma must provide written medical clearance from their doctor to participate in a voluntary SABRE® contamination. It is SABRE®’s recommendation that any students with allergies to pepper, asthma, or students who have had corrective eye surgery do not participate in the Voluntary Contamination Training.

11. Which of the following are included in the list of preexisting medical conditions that would prevent a student from participating in SABRE® contamination exercises?

Eye Disorders, Epilepsy, Heart Problems, Respiratory Problems, Lung Problems, Diabetes, High Blood Pressure or Other Medical Issues

REFERENCES

Academy of Personal Protection & Security Instructor Training Program

Anonymous. "Alert: Use-of-Force Tactics & Non-Lethal Weaponry."
<http://www.aele.org/alert.html>.

Anonymous. "The Krav Maga system of defensive tactics." FBI Law Enforcement Bulletin Volume 65, Issue 11 November 1996: 5

Anonymous. "Lab assesses nonlethal experiment, plans joint effort with army." Marine Corps Gazette Volume 80, Issue 10 October 1996: 8

Anonymous. National Academy of Public Safety, Inc. <http://www.aops.com/index.html>.

Anonymous. North East Multi-Regional Training. <http://www.nemrt.com>.

Anonymous. "Pepper spray and in-custody deaths." Police Chief Volume 61, Issue 6 June 1994: 4

Anonymous. "Use of Force – Force Continuum."
<http://www.tlalink.net/~police/citizen/kick.html>.

Arnsperger, Brian R. "Integrated use-of-force training program." FBI Law Enforcement Bulletin Volume 65, Issue 11 November 1996: 1-6.

Daley, Dorothy E; Roger M. Hayes; Lloyd E Swint; and Frank W Henn. "Don't let the fancy name fool you." Corrections Today Volume 57, Issue 4 July 1995: 24

Faulkner, Samuel D and Larry P Danaher. "Controlling subjects: Realistic training vs magic bullets." FBI Law Enforcement Bulletin Volume 66, Issue 2 February 1997: 20-23

Final Report of the Custody Death Task Force. San Diego Police Department, June 1992

Hunter, John C. "Focus on use of force: Pepper Spray." FBI Law Enforcement Bulletin Volume 63, Issue 5 May 1994: 24-26

IACP Pepper Spray Evaluation Project. June 22, 1995

McGoey, Chris E. "Security Guards Use of Force Continuum." Crime Doctor
http://www.crimedoctor.com/security_guards_2.html.

OCAT Instructor Manual & Basic Training Manual

National Institute of Justice – Pepper Spray's Effects on a Suspect's Ability to Breathe, D

Public Safety Training Center. Defensive Use of Oleoresin Capsicum (OC) Aerosol Spray

Reed, Susan and Rusty Dornin. "Tension high after pepper spray used on protesters."
CNN.com <http://www.cnn.com/EARTH/9710/31/pepper.spray.update/index.html>.

Rinkevich, Charles F. "Use of force: The police trainer's responsibility." *Police Chief* Volume 60, Issue 11 November 1993: 8

Tully, Larry and Brad Smith. "FLETC adopts unified approach to training." *Police Chief* Volume 63, Issue 11 November 1996: 45-47

Walt, Kathy. "State prisons turning more to pepper gas." *Houston Chronicle Austin Bureau* September 1997 <<http://www.chron.com/content/chron...opolitan/97/09/19/prisons.2-0.html>>

Williams, George T. "Reluctance to use deadly force: Causes, consequences, and cures." *FBI Law Enforcement Bulletin* Volume 68, Issue 10 October 1999: 1-5

Sgt. Darren Laur, Victoria Police Dept. - "Excited Delirium And Its Correlation To Sudden And Unexpected Death Proximal To Restraint". A review of the current and relevant medical literature.

Taser Test Cases.

FindLaw.com – Headwaters Forest Defense – Humboldt County, California

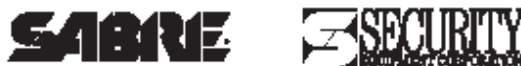
Tenn. v. Garner - Case Law

Journal of Refractive Surgery Volume 18 May/June 2002

Graham v. Connor – Case Law

APPENDIX

A.1 HOW TO PROPERLY EVALUATE AN OC SPRAY



SABRE OC EVALUATION FORM

(To be completed by person performing T&E)

This form has been constructed with the intent of assisting you in your OC evaluation. Each step contains a description on how to proceed. Please fax back to Mike Patterson @ 636-343-1318.

Brand	SABRE YES / NO	Other YES / NO
Styrofoam Cup Test – Safe Formula		
Eye, Skin, & Inhalation Tests		
HPLC Guarantee		
ISO 9001-2008 Certified		
EPA Establishment		
Level III Formulation		
Quality Control		
Deployment Versatility		
Range of Fire		
Consistency		
How Quickly Takes Effect*		
Number of Bursts		
EID Compatible		
Visualization Process		
Shelf Life		
Firing Mechanism		

*In order to determine must be tested on an individual.

- 1. Styrofoam Cup Test:** Spray a Styrofoam cup. If the cup disintegrates, the spray in question contains a carcinogen. Sprays containing carcinogens are serious health risks and could put your agency at great liability. If the cup does not disintegrate, the spray in question likely does not contain harmful carcinogens.

Document your results: _____

- 2. Eye, Skin, & Inhalation Tests:** Is there documented medical testing? If so, is the spray backed by Independent Eye, Skin, and Inhalation tests?

Document your results: _____

- 3. HPLC Guarantee:** Is the OC spray in question backed by an In-House HPLC Laboratory? Have you reviewed in-house & independent HPLC reports? High Performance Liquid Chromatography ensures heat level consistency in every batch. An HPLC Guarantee eliminates OC failures due to inconsistent heat levels and significantly increases the safety and effectiveness of your OC spray! **Yes No**

- 4. ISO 9001-2008 Certified:** Is the manufacturer ISO 9001-2008 certified? ISO 9001-2008 is the highest 3rd party standard of quality a manufacturer can earn as proof of its quality control program and efficiency. **Yes No**
- 5. EPA Establishment:** Is the manufacturer an EPA establishment? EPA establishments have registered OC sprays with the Environmental Protection Agency and proven their products are safe and effective. **Yes No**
- 6. Level III Formulation:** Formulations which exceed 1.0% Major Capsaicinoids give officers the greatest chance of gaining control of subjects who are emotionally disturbed, drug or alcohol induced, or goal oriented – Reduces Force Escalation.
Compare the Capsaicinoid level of the sprays you are testing: _____

- 7. Quality Control:** Does the manufacturer test fire and check every spray for leakage before it leaves the factory? **Yes No**
- 8. Deployment Versatility:** Does the spray maximize target acquisition by firing from any angle or orientation continuously? **Yes No**
- 9. Range of Fire:** How far does the spray fire? Compare the firing range of the sprays.
Document your results: _____

- 10. Consistency:** Does the spray fire consistently? Compare the spray patterns' velocity.
Document your results: _____

- 11. How Quickly Does The OC Take Effect*:** Does the OC take effect quickly enough to give your officers a tactical advantage? Spray ear to ear across the eyes (stream).
Document your results: _____

- 12. Number of 1 Second Burst:** How many 1 second bursts does the canister deploy? Count the number of 1 second bursts per canister of each spray.
Document your results: _____

- 13. EID Compatible:** Is the OC spray safe to use with Electronic Immobilization Devices? **Yes No**
- 14. Visualization Process:** Can you easily see where the OC has been deployed by its natural pigment? If so, you should be able to tell if a second more accurate shot is needed and where not to touch (prevents officer contamination)!
Document your results: _____

- 15. Shelf Life:** What is the OC sprays shelf life? Is it 5 years? What is the manufactures shelf life policy when the product is not expired but won't deploy?
Document your findings: _____

- 16. Firing Mechanism:** What is the firing mechanism (Flip top, trigger top, etc) in question? Is it comfortable and easy to use? Does it prevent accidental discharges?
Analyze the firing mechanisms: _____

747 Sun Park Drive, Fenton, MO 63026 • 636-343-0200 • 1-800-325-9568 • Fax: 636-343-1318 • www.sabred.com

A.2 ISO CERTIFICATION



PERRY JOHNSON REGISTRARS, INC.

Certificate of Registration

Perry Johnson Registrars, Inc., has audited the Quality Management System of:

Security Equipment Corporation
747 Sun Park Drive, Fenton, MO 63026 United States
(This is a single site scheme. See appendix for site specific activity.)

*(Hereinafter called the Organization) and hereby declares that
Organization is in conformance with:*

ISO 9001:2015

This Registration is in respect to the following scope:

**Design, Manufacture and Distribution of Aerosol Products,
Including Oleoresin Capsicum and Tear Gas Projectors**

*This Registration is granted subject to the system rules governing the Registration referred to above, and the
Organization hereby covenants with the Assessment body duty to observe and comply with the said rules.*



Terry Boboige

Terry Boboige, President

Perry Johnson Registrars, Inc. (PJR)
755 West Big Beaver Road, Suite 1340
Troy, Michigan 48084
(248) 358-3388

The use of the UKAS accreditation symbol is in respect to the activities covered by the Accreditation Certificate Number 0105.

The validity of this certificate is dependent upon ongoing surveillance.

Effective Date: December 28, 2019
Expiration Date: December 27, 2022

Certificate No.: C2019-03291
Page 1 of 2

A.3 FORCE SCIENCE RESEARCH CENTER ARTICLE

“New Study Ranks Risks of Injury From 5 Major Force Options”



Force Science News #102

In this issue:

New study ranks risks of injury from 5 major force options

How would you rank the relative risk for officers and suspects suffering injury from these 5 force options:

- Empty-hand control techniques
- Baton
- OC spray
- Conducted energy weapons (Tasers)
- Lateral vascular neck restraint.

If you judged OC to be the “safest” and baton to be “most injurious” to both officers and offenders, you’re in agreement with the findings of a new study of force encounters involving officers on a major municipal department.

The study, the first of its kind in Canada, was conducted by S/Sgt. Chris Butler of the Calgary (Alberta) Police Service and Dr. Christine Hall of the Canadian Police Research Center.

They analyzed 562 use-of-force events that occurred across a recent 2-year period as officers effected the arrests of resistant subjects in Calgary, a city of more than 1 million population. The threatened or actual use of firearms were omitted from the review, as were handcuffing, low-level pain compliance techniques like joint locks and pressure points, K-9s, and tactical responses such as chemical agents, flashbangs and less-lethal projectiles.

Here’s what they discovered:

• OC, used in roughly 5% of force-involved arrests, produced the lowest rate of injury. More than 80% of sprayed subjects sustained no injury whatever. About 15% had only minor injuries (“visible injuries of a trifling nature which did not require medical treatment”) and some 4% had what the researchers termed “minor outpatient” injuries (some medical treatment required but not hospitalization). No cases resulted in hospitalization or were fatal.

Officers involved in OC use fared even better. They suffered no injury in nearly 89% of cases and only minor damage the rest of the time.

The pepper spray involved was Sabre Red, with 10% oleoresin capsicum.

• **Batons, deployed in 5.5% of force-involved arrests, caused the greatest rate of higher-level injury.** Fewer than 39% of subjects receiving baton contact remained uninjured. More than 3% were hospitalized and nearly 26% required outpatient treatment, combining to be ³most injurious,² according to the researchers. About 32% of batoned subjects sustained minor injuries requiring no treatment.

Of officers involved in baton incidents, nearly 13% required outpatient treatment. Some 16% sustained minor injury and the rest were uninjured.

In Calgary, the baton used is the Monadnock Autolock expandable with power safety tip.

• **Empty-hand controls, applied in 38.5% of the force events, also ranked high for more serious injuries.** For purposes of the study, physical controls included ³nerve motor point striking and stunning techniques, grounding techniques such as arm-bar takedowns, and other balance displacement methods.²

Nearly 14% of these subjects required outpatient medical care and about 4% had to be hospitalized. Almost 50% had minor injuries and about 33% remained uninjured.

Among officers, 1% required hospitalization and 4.5% needed outpatient aid. The vast majority (77.8%) were uninjured and nearly 17% had minor injuries.

Judging from these findings, the researchers conclude, agencies need ³to seek out alternatives to hands-on physical control tactics and the baton if they wish to reduce the frequency and seriousness of citizen and police officer injuries.²

• **The second safest force mode for suspects proved to be the lateral vascular neck restraint.** Used in 3% of force-related arrests, the LVNR left more than half (52.9%) of offenders uninjured. About 41% sustained minor injuries and less than 6% required minor outpatient treatment. There were no hospitalizations and no fatalities.

Officers applying a LVNR remained uninjured more than 76% of the time and those who were hurt suffered only minor injuries.

• **Conducted energy weapons also scored high in safety for both suspects and officers.** The Taser X26, the CEW issued to Calgary officers, was the most frequently deployed of the 5 force options studied, being used against nearly half (48.2%) of resistant arrestees. About 1% ended up hospitalized, about 12% needed minor outpatient treatment and more than 42% had only minor injuries. Nearly 45% sustained no injuries and there were 0 fatalities.

Of officers using Tasers, about 83% were uninjured and about 13% sustained minor injuries. Only about 2% and 1% required outpatient medical attention or hospitalization respectively.

The commonly held belief that CEWs carry a significant risk of injury or death is not supported by the data. Indeed, they are less injurious than either the baton or empty-hand physical control, which often would be alternative options where electronic weapons were not available.

In a 14-page report of their study, Butler and Hall point out that no use of force technique available to police officers can be considered safe in the dictionary sense that it is free from harm or secure from threat of danger. Every use of force encounter between the police and a citizen carries with it the possibility for injury for one or all of the participants, however unexpected that injury might be.

The best that can be hoped for is an appropriate, proportional balance between the degree of risk of harm and the resistance faced by police that requires the use of force.

The public has been fed a large amount of incomplete or incorrect information and even intentional artifice about some force options, the researchers charge. Their study, they say, may help eliminate the resulting confusion. Plus, knowing the level of injury likely to result from a given force method can aid trainers and administrators in developing sound policies and practices.

This study is a great snapshot about force and its associated injuries and is a valuable addition to the discussion of force issues in Canada and elsewhere, says Dr. Bill Lewinski, executive director of the Force Science Research Center at Minnesota State University-Mankato.

Hopefully, the researchers will now be encouraged to probe further into some of the issues they touched on, exploring in greater depth the decision-making that led officers to apply various types of force, the level of emotional and physical intensity generated by subjects receiving the force, the causes of injuries to both officers and subjects, and so on. There is still much to be learned in these areas.

As part of their study, Hall and Butler compiled statistics on the broad overview of force encounters among Calgary officers, which closely mirror findings regarding U.S. law enforcement.

For instance:

- Out of more than 827,000 police-public interactions, the 562 instances which ended up involving use of force represented less than 1% (.07%) of the total. (Other studies have pegged that figure in the U.S. at 1.5%.)
- Arrests occurred in only 4.6% of police-public interactions, and 98.5% of the time the arrests were finessed without force.

- Roughly 88% of all subjects requiring force were under the influence of drugs and/or alcohol or ³some degree of emotional illness.² Almost 94% of resistant offenders requiring force were male.

- The researchers found ³a notable pattern of relationship³ between the number of officers present and the frequency and nature of injuries sustained by both citizens and officers.² Namely: ³[M]ore injuries occurred in circumstances where only one officer was present.²

The researchers state bluntly that ³biased reporting of events has led the lay-public to have the impression that the police use of force is frequent when compared to the overall number of police and public interactions.²

They mentioned also a bias that results in ³extensive media coverage of events where subjects have died² after use of a CEW and a ³lack of publication of CEW uses without an adverse outcome.²

Such skewed reporting ³prevents the public³ from forming an informed opinion about the actual risk presented² by various force modalities, they stated.

The study's official jaw-breaking title is: ³Public-Police Interaction and Its Relation to Arrest and Use of Force by Police and Resulting Injuries to Subjects and Officers; a Description of Risk in One Major Canadian Urban City.² It is expected to be posted online in mid- to late-August by the Canadian Police Research Center at www.cprc.org

S/Sgt. Butler can be reached at chris.butler@calgarypolice.ca.

Visit www.force-science.org for more information.

The Force Science News is provided by The Force Science Research Center, a non-profit institution based at Minnesota State University, Mankato. Subscriptions are free and sent via e-mail. To register for your free, direct-delivery subscription, please visit www.force-science.org and click on the registration button.

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A.4 POLICE AND SECURITY NEWS ARTICLE ***“Is Pepper Spray Obsolete?”***



JANUARY/FEBRUARY 2008

PUBLISHED BY DAYS COMMUNICATIONS, INC.

VOL. 24 ISSUE 1



Is Pepper Spray Obsolete?

By John M. Wills and Jeff Quail

With duty belts getting more crowded and TASER®s becoming more common, some agencies have opted to do without this use-of-force tool.

With the introduction of the TASER, most officers are finding that open space on their belt is a limited commodity. A large number of officers have the ability to carry three intermediate level weapons: the baton, OC spray and a TASER. However, with their duty belts maxed out and heavier than ever, officers are questioning whether they still need to carry OC spray. Many believe that the TASER is a suitable replacement option for OC. This article will explore the benefits of carrying all three less-lethal options, as well as explain the tactical benefits which OC spray can provide that other weapons cannot.

Its True Purpose

Contrary to early marketing campaigns, officers must recognize that OC spray was never designed to “physically” incapacitate resistant subjects. Rather, the original intent was to give officers a tactical advantage by possibly “psychologically” incapacitating the subject. The tactical advantage is gained by restricting vision; restricting respiration depth; and, potentially, causing an inward focus on pain.

The difference between physical incapacitation and psychological incapacitation is defined as follows: Psychological incapacitation describes the inability to provide physical resistance



***Don't make the mistake of comparing
TASER®s to OC sprays – they each work
differently, but both are effective.***

regardless of the will or conscious decision to resist. Noncompliant subjects consciously choose to focus on the pain and stop resisting, instead of making a conscious decision to accept the pain and continue fighting. True physical incapacitation involves the inability to resist, regardless of the mental will of the individual. When an officer chooses to deploy OC spray on a resistant subject, his mindset should be one in which he recognizes that it will give him a tactical advantage over his adversary. If the subject stops resisting as a result of the spray, the officer should view this as a bonus – never as the singular result of opting to spray. And, if the only result of spraying a subject is that he has a choice whether or not to focus on the pain and give up, then of what benefit is OC spray? This is where an understanding of the actual design of OC spray illustrates why it is an essential weapon for officers to continue to carry on the street. By understanding that OC spray is designed to give an officer a tactical advantage by restricting vision, restricting breath depth, and introducing pain, several advantages are realized.

OC's Tactical Advantages

First, the ability to restrict the vision of the subject provides a huge tactical advantage to officers. Vision is the most important sense to a human involved in a physical altercation. Vision allows an assailant to locate the officer and quickly obtain target acquisition for any technique or tactic. The ability for an officer to take away acquisition ability will provide an edge to that officer.

Second, the ability to restrict the depth of the breath provides a tactical advantage by reducing the ability to acquire advanced respiration. When involved in a physical altercation or fleeing from officers, an assailant will require a greater level of oxygen exchange to assist in performance. This is usually performed by having deeper respiration. Once OC particles are breathed into the lungs, the ability to take deep breaths will be hampered.

Third, the pain caused by contact on the skin and particle inhalation may compel a subject to mentally focus on that sensation. Again, officers must understand that this is a conscious decision

made by the offender. But, even if the offender does not choose to stop resisting, the pain can constantly interfere with their thought process. This can slow down their decision-making abilities, allowing officers to capitalize on the break in mental focus.

Top Five Reasons

Finally, here are five reasons why OC spray is unique and valuable as an intermediate weapon and why it should continue to be carried by officers:

1. OC spray can be utilized on multiple resistant subjects from a distance. The delivery system of OC spray allows for quick application of the product to several individuals at once. If the officer has a fogging spray or stream, this type of application becomes even easier. Unfortunately, a TASER can only be realistically used on one subject at a time.

2. OC spray does not rely on the size, strength and physical abilities of the officer. A baton is more effective in the hands of the larger, stronger and more skilled officer. The strength and effectiveness of the application of OC spray will always be the same, regardless of which officer applies the product. Unlike multiple baton strikes which require physical exertion, OC spray will not physically tax the officers.

3. OC spray can be used to motivate movement of an assailant from a physical area. If a subject is found hiding in a concealed area and refuses to comply with demands to come out, officers can contaminate the area without having to expose themselves to potential danger. This can be done by either utilizing a spray or one of the new OC expulsion grenades which are safe and flameless.

4. OC is small, light and cheap. The MK3 canisters are small in size, but carry multiple burst capacity. They are not heavy like batons and are far less costly than replacement cartridges for the TASER.

5. OC requires minimal training. I have often informed my students that, if I tossed a couple of canisters into the monkey cage at our local zoo, within five minutes they would be spraying each other. The weapon is a very simple tool to operate. After covering safety and decontamination, the bulk of the training should be centered around when, and how, to use the product to get maximum tactical advantage.

Mistaken Comparisons

Comparisons between TASERs and OC spray are like comparing apples and oranges. TASERs are designed to physically incapacitate a resistant subject, whereas OC spray is designed to provide a tactical advantage to officers. As you can see, the tactical advantages which OC spray can provide are substantial. The key is for officers to be properly trained to understand what OC spray can offer them when confronted with a noncompliant subject. If you recognize that incapacitation is not the primary intent for OC spray, then you understand that the tactical advantage it can provide you with is valuable. I hope that those of you who have removed this important less-lethal tool from your duty belt and placed it in your duffle bag will get that holster back on your belt where it belongs. Stay safe, brothers and sisters! [www.setcan.com](#)

About the Authors: John Wills, an ILEETA member, is a former Chicago police officer and retired FBI agent who finished his career as an instructor at the FBI Academy. He has taught street survival both domestically and internationally and has written dozens of articles pertaining to training and officer survival. John is an NCAA approved speaker on the dangers of steroids and drugs, and serves on a panel of judges evaluating new products for Law Enforcement Technology's Innovation Awards. John can be reached

at john@livesafe.com or by calling (540)226-9478.

Jeff Quail is the inventor of ShockKnife and is currently a sergeant with a major municipal Canadian police service. He has 16 years of experience. Jeff has several instructor trainer and instructor level certifications in the area of officer safety, defensive tac-

tics, and firearms. He has developed over ten officer safety-related programs and presents them all across North America. He recently presented at the Leading Edge of Martial Science Seminar in Edmonton, AB, and the Canadian Officer Safety Conference in Victoria, BC.

A.5 PEPPER SPRAY vs. MULTIPLE SUBJECTS – BOSTON PD

Police: Two Cops Use Pepper Spray to Defend Themselves While Getting Choked, Beaten by Seven Attackers

Dec. 31, 2014 3:25pm [Dave Urbanski](#)

Two Boston police officers were about to put handcuffs on 19-year-old Woobenson Morisset on a warrant for defaulting on court appearances. That's when, police say, Morisset yelled out — and the nearby apartments emptied.

A group of six — Morisset's 18-year-old brother and five juveniles — allegedly joined Morisset in beating and choking the two officers Monday night, [Boston.com reported](#).



Image source: WBZ-TV

The unnamed officers, a man and woman, used pepper spray to defend themselves before backup arrived, [WBZ-TV reported](#). The officers didn't draw their guns.

Suffolk Assistant District Attorney Dana Pierce described the scene after the two officers encountered Morisset. The [Boston Globe reported](#):

A.6 NY DAILY NEWS ARTICLE – NYPD MORE POTENT PEPPER SPRAY

EXCLUSIVE: NYPD hopes more potent pepper spray will lead to fewer police shootings, some critics say upgrade is recipe for disaster

BY [ROCCO PARASCANDOLA](#)
NEW YORK DAILY NEWS
Updated: Wednesday, January 27, 2016, 7:08 AM



WARGA, CRAIG/NEW YORK DAILY NEWS

“A more effective pepper spray can help reduce the amount of force needed to gain control of a suspect or emotionally disturbed person,” NYPD Deputy Chief Edward Mullen told the Daily News.

The NYPD hopes a more potent pepper spray will lead to fewer police shootings — but some critics say the upgraded aerosol is a recipe for disaster.

More than 19,000 cops so far have been given canisters of Sabre 5.0, a spray with a .67% concentration of major capsaicinoids, the chemicals that make peppers hot.

That’s more than three times the .21% concentration in the spray the NYPD has used for years. Both sprays are manufactured by Sabre Security Equipment Corp.

NYPD officials could not say how many times the new spray has been used in the six weeks or so it has been in use.

But they said that as the department works to track and investigate the use of force, it will know how often cops are using the spray, which is considered the preferable alternative to other uses of force from a physical takedown to shooting a gun.

NYPD guidelines permit the use of pepper spray when it is deemed necessary to bring someone resisting arrest into custody, to subdue an emotionally disturbed person who is resisting or for self defense against someone using force.

The .21% version — so weak it usually did not work on dogs, emotionally disturbed people or suspects high on certain drugs — was considered unreliable by many officers.

“A more effective pepper spray can help reduce the amount of force needed to gain control of a suspect or emotionally disturbed person,” NYPD Deputy Chief Edward Mullen told the Daily News.

“The new pepper spray will still be significantly weaker than what is used by many other police departments around the country.”

Indeed, nearly 100 other law enforcement agencies use a stronger spray, including the Suffolk County Police Department, the U.S. Marshals Service and the Boston Police Department — all of which use the strongest one on the market, a 1.33% concentration.

The NYPD said officers used pepper spray 284 times in arrest situations last year, down from 337 the year before.



More than 19,000 cops so far have been given canisters of Sabre 5.0, a spray with a .67% concentration of major capsaicinoids, the chemicals that make peppers hot.

The Civilian Complaint Review Board for the years 2010 through 2014 substantiated 13 allegations, just 2.3% of the 561 total pepper spray allegations.

In 2015, however, another 10 such allegations — 10% of all pepper spray complaints that year — were substantiated.

But NYPD critics say police too often misuse pepper spray, blasting it into crowds — or within three feet of a person's face, which can cause cardiac or respiratory problems.

"Given that excessive force is all too common in the NYPD, we are concerned about officers having more powerful pepper spray," said Christopher Dunn, associate director of the New York Civil Liberties Union.

Lawyer Ron Kubby, who represented one of the Occupy Wall Street protesters famously sprayed by Deputy Inspector Tony Bologna, said the new higher concentration was not the problem.

"It's not properly used," he said, "and it's deployed somewhat promiscuously at people the cops don't like."

Joshua Moskovitz, another lawyer representing an OWS protesters in a pending lawsuit, said he hopes the NYPD will better train cops on how to use the spray.

"I'm sure there are occurrences where pepper spray is useful and has been used in an appropriate manner," he said. "I've only seen it in a way that exacerbates the situation."

A.7 CORRECTIONS OFFICER USE CHEMICAL AGENTS TO PROTECT THEMSELVES ARTICLE



Correction Officers on Rikers Island Opt to Use Chemical Agents to Protect Themselves

By Courtney Gross

Friday, December 4, 2015 at 07:03 PM EST



A federal investigation and a court-appointed monitor have led to a new use-of-force policy for correction officers on Rikers Island. Now, those officers are opting for a different way to protect themselves: chemical agents. NY1's Courtney Gross filed the following report.

Correction officers have a new favorite weapon on Rikers Island. It's called MK-6, a high-intensity pepper spray.

"We have no choice but to continue to use those chemical agents to protect ourselves," said Norman Seabrook, president of the Correction Officers Benevolent Association.

NY1 has learned that the use of chemical agents has dramatically increased on Rikers Island over the past year.

Take a look at statistics on when a correction officer uses force on an inmate but it results in no injury. The use of chemical agents is a substantial part of these numbers, although City Hall could not provide us with specifics. In the past year, this particular category has gone up 31 percent.

Officials at the Correction Department say the use of chemical agents is a good thing and that serious injuries on the island are down. In fact, a spokesman said, "The use of chemical spray is part of a redesigned Use of Force policy that emphasizes using force that is proportional to the threat encountered, and using de-escalation techniques whenever practical."

The officers' union and advocates see it differently.

"When two inmates are fighting each other or assaulting correction officers, they are so afraid to use physical force to separate people, they are using chemical agents," Seabrook said. "And this is going to cause a problem down the road because if you hit someone with a chemical agent and they have an allergic reaction to it, it could cause the death of an inmate."

"We also heard that there is just an increase in the amount that's used in response to the incident," said Riley Doyle Evans of Brooklyn Defender Services. "So everybody in the unit is basically affected, and that may have something to do with the strength of the chemical or just how much they are using to respond to different things."

There is a directive to instruct correction officers in how to use this chemical spray, but City Hall would not provide it to us, saying it is not a public document.

Perhaps the spray is protecting officers. At a correction officers' graduation ceremony on Friday, the mayor said assaults on staff are heading south. Then, some in the crowd chuckled.

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<http://www.ny1.com/nyc/all-boroughs/news/2015/12/4/correction-officers-on-rikers-island-opt-to-use-chemical-agents-to-protect-themselves.html>

A.8 THE DOMINION POST ARTICLE



Police combat assault rise with powerful pepper spray

[TALIA SHADWELL](#)

Last updated 05:00 20/03/2014

Police are stepping up firearms training and trialling stronger pepper spray after a near-trebling of serious violence cases against officers.

Today they will announce the extension of a trial of a powerful new pepper spray that delivers six times the wallop of its predecessor.

The move comes after firearms and Taser training for an extra 700 police was announced in February. The changes, to be introduced on July 1, will see about 5700 police get M4 rifle, Glock pistol and Taser training, and a further 2100 receive Glock training only.

Police Association president Greg O'Connor said his organisation had lobbied for more firearm and Taser training as more officers were being assaulted.

Some of those working weekend and evening shifts did not have the training to bear arms, he said. That put them at risk when dealing with violent offenders aggravated by drugs or alcohol.

"We have got police being seriously assaulted increasingly. The situation has worsened - often serious assaults on officers are not even [reported publicly]."

He also welcomed the trials of stronger pepper sprays. "When police are facing assault from people on drugs or who have been drinking, pepper spray is a very good option for dealing with those people, who can be very resistant."

The announcement will extend the trials from the Bay of Plenty into the Eastern policing district covering Napier, Hastings and Gisborne.

The trials involve liquid and gel forms of the Sabre Red spray, which contains six times more capsicum than the one used at present, meaning it will work faster, and take longer to wear off.

Pepper spray had one of the lowest injury rates of all options used by police, national operational services manager Inspector Jason Ross said.

Just five minor and three moderate injuries resulted from the use of Sabre Red in the Bay of Plenty trial, according to figures released under the Official Information Act.

Statistics supplied to The Dominion Post by the Police Association show the number of serious assaults reported by police went up 172.5 per cent between 1998 and 2013.

The number of officers assaulted by armed offenders doubled in the same period.

Within the 2012-13 fiscal year, 28 officers were assaulted by someone carrying a firearm. Eleven officers were shot and killed or wounded between 2002 and 2010.

The figures show a peak in serious assaults occurred in 2009-10, when there were 41 recorded incidents of assault on police by someone carrying a gun.

However, figures provided by police show the total number of assaults has declined every year since that spike, as police come up with better methods to keep officers safe.

In the 2008-09 year, 2481 assaults on police were recorded, compared with 1763 in 2012-13. Stab-resistant body armour was introduced in 2006, and police had since focused on improving tactical training, getting safety alarms, and greater access to Tasers and firearms, a spokesman for national headquarters said.

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A.9 GRAHAM v. CONNER SUMMARY

USE OF FORCE: FEDERAL STANDARDS

The Fourth Amendment “Objective Reasonableness” Standard:

In 1989, the United States Supreme Court applied an objective standard to a nondeadly force situation and further established how reasonable force must be judged objectively (Graham v Connor). The Court’s analysis began by considering the suspect’s Fourth Amendment right to remain free from any unreasonable seizure against the government’s interest in maintaining order through effective law enforcement.

The court noted that determining the objective reasonableness for the use of force must be fact specific and established the following four components for determining reasonableness. The reasonableness of a particular use of force must be:

Judged from the perspective of a reasonable officer.

Examined through the eyes of an officer on the scene at the time the force was applied.

Based on the facts and circumstances confronting the officer without regard to the officer’s underlying intent or motivation.

Based on the knowledge that the officer acted properly under the established law at the time.

The Officer’s Perspective:

Peace officers will constantly be faced with decisions as to when to use force and to what degree it should be applied. The totality of the circumstances must be evaluated from the perspective of the officer at the scene, rather from an outsiders benefit of hindsight. Reasonable force must be based on the facts and circumstances known to the peace officer at the time the force was used. The Court noted that, “the amount of force necessary for the situation is determined by the objective reasonableness as judged by a reasonable officer given the officer’s training and experience.

The Officer’s Intent:

The primary objective for the application of force is to ensure control of a suspect. The Court determined that the officer’s subjective feelings toward a suspect should not be

considered when establishing whether or not to use force or the amount of force to use for a specific situation.

Additional Gauges for Reasonableness:

The Court noted that the following facts should also be considered but not limited to when gauging reasonableness:

- The severity of the crime
- The nature and extent of the threat posed by the suspect
- The degree to which the suspect resists arrest or detention
- Any attempts by the suspect to evade arrest by flight

A.10 LASIK, LASEK or PRK FOR COP? ARTICLE

Each procedure has pros and cons for a patient about to enter the police academy.

Edited by Joseph P. Shovlin, O.D.

5/19/2007

Q: I have a 21-year-old patient who hopes to enter the State Police Academy soon. But, to be admitted, he needs better uncorrected visual acuity than what he currently has. Which refractive surgery procedure is most appropriate, taking into account his need for fast recovery and the potential for injury?

A: This case presents two conflicting concerns: Will the patient's visual acuity improve quickly enough and to the level required to enter the police academy? And, how can he minimize the risk of injury from hand-to-hand combat or exposure to pepper spray?

Make sure the patient is aware that with any refractive surgery, visual acuity may not improve to a level that



Police academy combat training often involves situations that put the eyes of a patient recovering from refractive surgery at risk.

satisfies the academy's entrance requirements. Once the patient understands this risk, there are several factors to consider in choosing the most appropriate procedure.

Laser-assisted in situ keratomileusis (LASIK), with its normally predictable and swift recovery, may initially draw the patient's interest and possibly clear him for entry into the academy earlier than photorefractive keratectomy (PRK) or other non-lamellar procedures.

But, LASIK also poses some potentially severe risks for the patient involved in police academy training. Specifically, the corneal flap created during LASIK can become dislocated following minor physical trauma, such as a finger or object striking the eye. If the flap becomes dislocated, the patient would require further medical or surgical intervention to correct the dislocation and protect the patient's vision.¹

We will do LASIK on a patient who will enter the police academy, but I would give a significant caution of possible injury and would mandate the use of eye protection in a post-LASIK patient during any training involving hand-to-hand combat, says Louis Phillips, O.D., of Wexford, Pa. But, if



time permitted, he would recommend surface ablation in this case because of the risks associated with LASIK, he adds.

A foreign object or force would have to combine with sufficient pressure and catch the flap at a specific angle to cause dislocation or other flap injury, says J. James Thimons, O.D., of Fairfield, Conn. Although there is only an extremely minimal risk of a glancing blow that would catch the flap, if the patient is engaging in any activity where there is frequent facial contact, I would recommend Epi-LASIK or PRK, he adds.

LASIK flap dislocations have been shown to occur in a minority of cases up to seven years after surgery.² There would be a risk to this patient in the course of day-to-day police activity even after he has completed academy training. So, it is in the patients best interest to explore other options. Typically, if somebody is in a combat or high-contact situation, PRK or another non-lamellar procedure would better maintain structural stability [of the cornea], Dr. Thimons says.

But, the recovery of visual acuity after surface ablation, such as PRK or laser epithelial keratomileusis (LASEK), is much slower than that post-LASIK. Patients who receive PRK or LASEK may take weeks or months to achieve their full results, and many patients experience corneal haze, glare and haloes during recovery. If this patient undergoes surface ablation, he may have to delay entrance into the academy for anywhere from six to nine months.³

The use of pepper spray in police academy training raises further concerns for a post-LASIK patient. While visual acuity and corneal sensitivity can be maintained in LASIK patients after exposure to pepper spray (oleoresin capsicum), there is some evidence of late-onset diffuse lamellar keratitis (DLK) caused when foreign irritants become trapped beneath the corneal flap.^{2,4-5}

Because PRK and LASEK do not require creation of a corneal flap, patients who undergo these procedures are at less risk for complications following ocular exposure to pepper spray or other irritants.

The bottom line: In this particular situation, LASIK poses significantly more risks than benefits. Essentially, you must put the patients best long-term interest and future safety ahead of his eagerness to enter training and his consequent need for quick recovery. Assure the patient that while options such as PRK and LASEK may delay his entry into the police academy, they can ultimately protect him from career-threatening complications.

1. Lombardo AJ, Katz HR. Late partial dislocation of a laser in situ keratomileusis flap. J Cataract Refract Surg 2001 Jul;27(7):1108-10.
2. Cheng AC, Rao SK, Leung GY, et al. Late traumatic flap dislocations after LASIK. J Refract Surg 2006 May;22(5):500-4.
3. Leccisotti A. Laser-assisted subepithelial keratectomy (LASEK) without alcohol versus photorefractive keratectomy (PRK). Eur J Ophthalmol 2003 Oct;13(8):676-80.
4. Hand D, Chotiner B. Maintenance of visual acuity after exposure to oleoresin capsicum spray following LASIK. J Refract Surg 2002 May-Jun;18(3):293-4.
5. Kocak I, Karabela Y, Karaman M, Kaya F. Late onset diffuse lamellar keratitis as a result of the toxic effect of Ecballium elaterium herb. J Refract Surg 2006 Oct;22(8):826-7.



Even after training, a police academy graduate still faces many situations that mandate protective eye wear, especially for those who have undergone LASIK.

A.11 TETRACHLOROETHYLENE MSDS

MSDS Number: **T0767** * * * * * Effective Date: **08/16/05** * * * * * Supersedes: **05/08/03**

	24 Hour Emergency Telephone: 800-859-2151 CHEMTREC: 1-800-424-9300
	National Response In Canada CANUTEC: 613-996-6666
From: Mallinckrodt Baker, Inc. 222 Red School Lane Phillipsburg, NJ 08865	 
Outside U.S. and Canada Cheminc: 705-527-3887	NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.
All non-emergency questions should be directed to Customer Service (1-800-882-2637) for assistance.	

TETRACHLOROETHYLENE

1. Product Identification

Synonyms: ethylene tetrachloride; tetrachloroethene; perchloroethylene; carbon bichloride; carbon dichloride

CAS No.: 127-18-4

Molecular Weight: 165.83

Chemical Formula: C₂Cl₄

Product Codes:

J.T. Baker: 9218, 9360, 9453, 9465, 9469

Mallinckrodt: 1933, 8058

2. Composition/Information on Ingredients

Ingredient	CAS No.	Percent	Hazardous
Tetrachloroethylene	127-18-4	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT, AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS, SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate (Poison)

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate (Life)

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Blue (Health)

Potential Health Effects

Inhalation:

Irritating to the upper respiratory tract. Giddiness, headache, intoxication, nausea and vomiting may follow the inhalation of large amounts while massive amounts can cause breathing arrest, liver and kidney damage, and death. Concentrations of 600 ppm and more can affect the central nervous system after a few minutes.

Ingestion:

Not highly toxic by this route because of low water solubility. Used as an oral dosage for hookworm (1 to 4 ml). Causes abdominal pain, nausea, diarrhea, headache, and dizziness.

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain. May be absorbed through the skin with possible systemic effects.

Eye Contact:

Causes irritation, redness, and pain.

Chronic Exposure:

May cause liver, kidney or central nervous system damage after repeated or prolonged exposures. Suspected cancer risk from animal studies.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance. The use of alcoholic beverages enhances the toxic effects.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

Aspiration hazard. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

Wash skin with soap or mild detergent and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:

Do not administer adrenaline or epinephrine to a victim of chlorinated solvent poisoning.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard but becomes hazardous in a fire situation because of vapor generation and possible degradation to phosgene (highly toxic) and hydrogen chloride (corrosive). Vapors are heavier than air and collect in low-lying areas.

Explosion:

Not considered to be an explosion hazard. Containers may explode when involved in a fire.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Store in a cool, dry, ventilated area away from sources of heat or ignition. Isolate from flammable materials. Protect from direct sunlight. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):

100 ppm (TWA), 200 ppm (ceiling),

300 ppm/5min/3-hour (max)

-ACGIH Threshold Limit Value (TLV):

25 ppm (TWA), 100 ppm (STEL); listed as A3, animal carcinogen

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airtight hood, or full-facepiece self-contained breathing apparatus.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Clear, colorless liquid.

Odor:

Ethereal odor.

Solubility:

0.015 g in 100 g of water.

Specific Gravity:

1.62 @ 20C/4C

pH:

No information found.

% Volatiles by volume @ 21C (70F):

100

Boiling Point:

121C (250F)

Melting Point:

-19C (-2F)

Vapor Density (Air=1):

5.7

Vapor Pressure (mm Hg):

18 @ 25C (77F)

Evaporation Rate (BuAc=1):

0.33 (trichloroethylene = 1)

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Slowly decomposed by light. Deteriorates rapidly in warm, moist climates.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition. Hydrogen chloride gas and phosgene gas may be formed upon heating. Decomposes with moisture to yield trichloroacetic acid and hydrochloric acid.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong acids, strong oxidizers, strong alkalis, especially NaOH, KOH; finely divided metals, especially zinc, barium, lithium. Slowly corrodes aluminum, iron and zinc.

Conditions to Avoid:

Moisture, light, heat and incompatibles.

11. Toxicological Information

Oral rat LD50: 2629 mg/kg; inhalation rat LC50: 4100 ppm/6H; investigated as a tumorigen, mutagen, reproductive effector.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Tetrachloroethylene (127-18-4)	No	Yes	2A

12. Ecological Information

Environmental Fate:

When released into the soil, this material is expected to quickly evaporate. When released into the soil, this material may leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. When released into water, this material is not expected to biodegrade. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals.

Environmental Toxicity:

The LC50/96-hour values for fish are between 1 and 10 mg/l. The LC50/96-hour values for fish are between 10 and 100 mg/l. This material is expected to be toxic to aquatic life.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1
UN/NA: UN1897
Packing Group: III
Information reported for product/size: 20L

International (Water, I.M.O.)

Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1
UN/NA: UN1897
Packing Group: III
Information reported for product/size: 20L

15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
-----
Tetrachloroethylene (127-18-4)                Yes  Yes  Yes    Yes

-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  DSL  NDSL  Phil.
-----
Tetrachloroethylene (127-18-4)                Yes   Yes  No    Yes

-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
RQ  TPQ  List  Chemical Catg.
-----
Tetrachloroethylene (127-18-4)                No   No   Yes   No

-----\Federal, State & International Regulations - Part 2\-----

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Ingredient	CERCLA	-RCRA-	-TSCA-
Tetrachloroethylene (127-18-4)	100	261.33 U210	6 (d) No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
 Reactivity: No (Pure / Liquid)

WARNING:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

Australian Hazchem Code: 2[Z]

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: **Health: 2** **Flammability: 0** **Reactivity: 0**

Label Hazard Warning:

WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure.

Label Precautions:

Do not get in eyes, on skin, or on clothing.

Do not breathe vapor or mist.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Label First Aid:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases call a physician.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 3, 11.

Disclaimer:

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Prepared by: Environmental Health & Safety

Phone Number: (314) 654-1600 (U.S.A.)

A.12 WHAT'S IN PEPPER SPRAY?**WHAT'S IN PEPPER SPRAY?**

BY MICHAEL COLLINS

THURSDAY, FEBRUARY 23, 2012



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ILLUSTRATION BY JIMMY GIEGERICH

When seated Occupy UC Davis protesters turned their backs on Lt. John Pike and his UC Davis police squad clad in riot gear on Nov. 18, he had had enough.

Pike aimed a large can of First Defense aerosolized Oleoresin Capsicum at two-dozen occupiers, including student David Buscho and his girlfriend.

"The police officer came up to us and said, 'If you guys don't move, we're going to shoot you,' so we turned around," Buscho said to a crowd of several hundred occupiers three days later in the same quad where he was sprayed.

"Then it happened," Buscho continued as the angry crowd listened transfixed. "At that point I entered a world of pain. It felt like hot glass was entering my eyes. I couldn't see anything. I wanted to open my eyes, but every time I did the pain got worse."

But in one way, Buscho got off easy. Police in California generally do not use pepper spray that contains as its main ingredients the mainstays of several popular pepper sprays sold in Los Angeles and California retail outlets — the dry cleaning solvent and toxin tetrachloroethylene, or PCE, and its distillate, the once-common degreaser and toxin trichloroethylene, or TCE.

California's Safe Drinking Water and Toxic Enforcement Act of 1986, better known as Proposition 65, requires that the governor publish an annual list of chemicals known to the state to cause reproductive toxicity or cancer. Both PCE and TCE made the list in April 1988 as chemicals that cause cancer.

Yet no law is on the books in California to prevent PCE's or TCE's use in products meant to be sprayed directly into somebody's face.

"California has banned other uses of TCE in consumer products, including spray paints and other aerosols," says Sarah Janssen of the Natural Resources Defense Council in San Francisco. "It's not a stretch of the imagination to think that significant exposures are occurring in the vicinity of pepper spray fumes."

TCE-based pepper spray is being sold in California through the Internet by Fox Labs International and Personal Safety Corporation, according to the companies' websites. And two of Personal Safety Corporation's Pepper Defense products with PCE but without Proposition 65 warnings were being sold at True Value and Do It Best stores that *L.A. Weekly* visited earlier this month in Los Angeles, Santa Monica, Eagle Rock, Florence-Graham, Hollywood, Venice and North Hollywood.

Seven Fox Labs International pepper spray products are sold locally through Galls, a large police and public safety equipment and apparel company, with local stores in Los Angeles, Long Beach, Orange and Riverside. On the stores' websites, No Proposition 65 warnings are indicated on these items.

"PCE and TCE are known carcinogens on California's Proposition 65 list, which means products containing them should by law carry the Proposition 65 warning label," says Ana Mascareñas, policy coordinator for Physicians for Social Responsibility—Los Angeles, a public health and environmental group.

"It is almost inconceivable that these pepper sprays are being sold in California without labels warning consumers of the cancer risks," she adds.

Ed Ferguson, president of Michigan-based Fox Labs International, boasts: "First Defense has been described as ketchup to my Tabasco. You won't find anyone hit with ... Fox that wouldn't rather be hit with a Taser."

Fox Lab's pepper spray is, by weight, 98 percent "volatiles" — meaning a liquid that is easily vaporized. And that volatile is TCE.

Ferguson takes umbrage at California regulators calling TCE a carcinogen.

"California's the only people that say it," Ferguson says. "Why is that? California don't have their shit together and yet they're saying a lot of stuff for a lot of people that puts them into bankruptcy."

At Personal Safety Corporation, the producer of pepper spray containing PCE, president and founder Dick Olson tells the *Weekly*, "California probably has some of the most stringent interpretations of what's carcinogenic and at what levels."

Olson says Pepper Enforcement is made with TCE but that the "amount of that chemical is so minute as to not cause harm to humans. It's a very minute amount."

But publicly available Material Safety Data Sheets reveal a different story.

Material Safety Data Sheets contain data regarding the official known properties of a specific substance. The figures on the sheets regarding Personal Safety Corporation pepper sprays sold at True Value stores in California show that two of them come in formulas with PCE (volatiles) levels at 95 percent by weight.

Do It Best was quick to defend its California handling of Personal Safety Corporation products.

Do It Best communications director Randy Rusk says in an email, "Do it Best Corp. takes safety and compliance issues seriously, and we are looking into the labeling situation to affirm the products we carry and that our vendors are in compliance with state law."

"True Value is a cooperative," says True Value spokeswoman Marsha Burton. "That means our members created us. We can't tell a member what they can and can't sell. A lot of members could have bought [the Personal Safety Corporation pepper spray] from Do It Best."

Burton subsequently supplied the *Weekly* with Material Safety Data Sheets showing that True Value does sell Personal Safety Corporation pepper sprays with 95 percent PCE.

Mascareñas fumes upon hearing the retailers' remarks.

"It's a public-health outrage if this kind of pepper spray contains 95 percent PCE or 98 percent TCE by [weight]," Mascareñas says. "Consumers have a right to know what toxic chemicals are in pepper spray and decide if they want to take the everyday risk of being exposed to another known carcinogen."

But trichloroethylene is up to 5,000 times cheaper than the safe 1,1,1,2-Tetrafluoroethane, or HFA, which is used as the base inert ingredient in TCE-free pepper sprays. HFA costs about \$500 a pound, while the same amount of TCE can be had for a dime.

Lenny Siegel of the Mountain View-based Center for Public Environmental Oversight, who last year was named by the U.S. Environmental Protection Agency as its Superfund "Citizen of the Year," says, "Leakage from spray cans may pose a continuing hazard to those who carry them."

While you can get it on many retail store shelves, several police agencies the *Weekly* contacted do not use pepper spray containing PCE or TCE.

The Santa Monica and Simi Valley police departments said they carry Sabre Red brand 10 percent capsaicin pepper spray. The Los Angeles County Sheriff's Department also uses Sabre Red, while the Los Angeles Police Department's website indicates that it uses First Defense.

But who will protect consumers who are urged to buy pepper spray available on store shelves for personal safety but may be getting something more dangerous than they ever imagined?

The National Institute for Occupational Safety and Health says PCE is a potential human carcinogen and causes "depression of the central nervous system; damage to the liver and kidneys; impaired memory; confusion; dizziness; headache; drowsiness; and eye, nose and throat irritation."

The Michael J. Fox Foundation for Parkinson's Research reported in a February 2010 study that PCE increases the risk of Parkinson's by a multiple of nine. The U.S. Environmental Protection Agency on Sept. 30, 2011, found TCE causes liver and kidney cancer, lymphoma and other illnesses.

"There is a perception that a cancer-causing substance doesn't belong in such a product, even if its intent is to irritate and/or disable," Siegel says of TCE in pepper spray.

A.13 NBC News Article - Contamination At Marine Base Lasted 60 Years

Contamination at NC Marine base lasted up to 60 years

Over the span of 35 years, between 500,000 and 1 million people were exposed to contaminated water at Camp Lejeune in North Carolina, one of the most storied Marine bases in the country. A group of men have banded together saying that their surprising breast cancer diagnoses are linked to Camp Lejeune's contaminated water. Dr. Nancy Snyderman reports.

By Maggie Fox, Senior Writer, NBC News

Some of the wells that supplied drinking water to Camp Lejeune in North Carolina were contaminated by cancer-causing solvents for as long as 60 years, a new federal report shows.

Month-by-month calculations show that Marines and their families at the base drank and bathed in water that may have been tainted with trichloroethylene (TCE) from 1948 through 2008. Other water sources were contaminated with benzene from 1951 to 2008, the report shows.

Federal officials have known for years that the base's water supply was badly contaminated, from fuel leaks and probably from a dry-cleaning plant as well. The Centers for Disease Control and Prevention (CDC) has estimated that between 500,000 and 1 million people were exposed to the contaminated water from 1953 to 1987, when the last of several contaminated wells were closed. The new report takes the potential estimates back five years earlier.

"It is possible," Dr. Christopher Portier, director of the CDC's Agency for Toxic Substances and Disease Registry, told NBC News. But he says he believes it more likely the contamination began in 1953, as previously estimated. "It is most likely that TCE first exceeded its current MCL (maximum contaminant level) during August 1953, but this exceedance could have been as early as November 1948 if releases of TCE to the subsurface began during or immediately following the onset of construction (1941/1942) of USMCB Camp Lejeune," the agency writes in a report to be published Friday.

The highest levels were not reached until decades later, however, depending on the chemical. The highest levels of TCE, for example, were reached in the late 1970s. To add to the complication, each housing and office area on the sprawling base was affected differently.

Marines have complained they and their children suffered cancer, including breast cancer and fatal leukemia, because of the contamination. NBC's Rock Center reported on the cases in February. The chemicals found in the water are linked not only with cancer, but with aplastic anemia, kidney disease, infertility, lupus, Parkinson's disease and other conditions. The findings mean people who lived at the base during the affected times can seek compensation and medical care from the federal government.

"This release marks a major milestone towards the completion of scientific efforts pertaining to this issue and another step in ongoing efforts to provide comprehensive science-based answers to the health questions that have been raised," the Marine Corps said in a statement.

"ATSDR will use these results and the results of a similar water model developed for the Tarawa Terrace area in 2007 to estimate chemical exposures for several of their on-going health studies." The Marines has a website dedicated to the case here.

Portier says someone who lived or worked at the base for 20 years would be at higher risk than someone who was stationed there for only two years. But women who were pregnant while at the base and children have different risks.

The ATSDR came up with the projections after making measurements of known leakage rates and sources of the chemicals into wells that supplied the base's Hadnot Point Water Treatment Plant. It opened in 1942.

"The ATSDR is conducting epidemiological studies to evaluate the potential for health effects from exposures to volatile organic compounds [tetrachloroethylene (PCE), trichloroethylene (TCE), trans-1,2-dichloroethylene (1,2-tDCE), vinyl chloride (VC), and benzene] in finished water at U.S. Marine Corps Base Camp Lejeune, North Carolina," it said. Most of the chemicals are certain or probable cancer-causing agents.

Portier says it's not an exact science, but extrapolations made by looking at known contamination levels, studying groundwater seepage rates and the rates that chemicals dissolve in water. "We try to go backwards from what we are seeing today to what happened in the past," he said.

"Basically, it's vindication and confirmation for what I've been saying for nearly 16 years," retired Marine Staff Sgt. Jerry Ensminger told the Associated Press. Ensminger, who attended a briefing on the report on Thursday, believes the contamination cause the leukemia that killed his 9-year-old daughter Janey. "The truth is finally coming out." Portier says investigators will use the data to help assess the health risks to people who lived at the base. Different water sources had differing levels of contamination over the years. One report, looking at cancer cases among 12,500 children born at the base, will come out soon, Portier said. Another looks at deaths among Marines who were stationed there and will also come out soon. A third report, looking at health overall, should be finished in two years, he says.

"For each of those people who identified themselves as having the diseases we are interested in, they have to go get their health records," Portier says. "For 70,000 people, that takes a very long time."

The United States Marine Corps started routinely testing tap water in 1980. Officials have said it took them four years to determine which wells were contaminated, and that once those wells were identified, they were shut down immediately

"The level [of contamination] in the drinking water was the highest that I've ever seen," said Dr. Richard Clapp, an epidemiologist at the University of Massachusetts. "I've been working on this kind of thing for 30 years. I have never heard of a community that's had the levels of contaminants that they had at Camp Lejeune."

He has examined the data from Camp Lejeune and says he believes the contamination and the cancers are related. "The cluster of disease— for example, male breast cancer— may also turn out to be the highest that's been seen anywhere," Clapp told Rock Center in February. The VA has a website for people who think they may have been affected.

Under a law signed Aug. 6, 2012, veterans and family members who served on active duty or resided at Camp Lejeune for 30 days or more between Jan. 1, 1957 and Dec. 31, 1987 may be eligible for medical care through VA for 15 health conditions," the site reads. They include lung, breast and bladder cancer, leukemia, infertility, kidney damage and other

A.14 AGENCY USER LIST

US Department of Defense
 Royal Canadian Police
 Pentagon Police
 US Immigration and Customs
 Enforcement

New York Police Department
 Chicago Police Department
 Houston Police Department
 Phoenix Police Department
 San Antonio Police Department
 Dallas Police Department
 Detroit Police Department
 Vancouver Police Department
 Calgary Police Department
 Ottawa Police Department
 St. Louis Police Department
 St. Louis County Police Department
 Miami Police Department
 Suffolk County Police Department
 San Francisco Police Department

LA County Sheriff
 Norfolk County Sheriff
 New York City Sheriff
 Broward County Sheriff
 Fulton County Sheriff
 Harris County Sheriff
 Dallas County Sheriff
 Suffolk County Sheriff

New Hampshire State Police
 Rhode Island State Police
 South Carolina Highway Patrol
 Georgia State Patrol
 Florida Highway Patrol
 Missouri State Highway Patrol
 Virginia State Police
 Oregon State Police
 Pennsylvania State Police

Maine DOC
 New Hampshire DOC
 New Jersey DOC
 Rhode Island DOC
 West Virginia DOC
 Florida DOC
 Michigan DOC
 Tennessee DOC
 Missouri DOC

FEDERAL AGENCIES

US Customs & Border Protection
 Customs Canada
 Federal Reserve Bank
 United States Coast Guard

US Federal Bureau of Prisons
 US Capitol Police
 US Marshals Service
 US Environmental Protection Agency

POLICE DEPARTMENTS

Baltimore Police Department
 Boston Police Department
 Denver Police Department
 Baltimore Co Police Department
 Las Vegas Police Department
 Nashville Police Department
 Fort Worth Police Department
 Mesa Police Department
 Atlanta Police Department
 Fulton Co Police Department
 Portland Police Bureau
 Tulsa Police Department
 Virginia Beach Police Department
 Pittsburgh Police Department
 Little Rock Police Department

Tampa Police Department
 Hartford Police Department
 Toledo Police Department
 Raleigh Police Department
 Anchorage Police Department
 Huntsville Police Department
 Mobile Police Department
 Richmond Police Department
 Knoxville Police Department
 Providence Police Department
 Reno Police Department
 Santa Fe Police Department
 Cleveland Police Department
 Dayton Police Department
 Orlando Police Department

SHERIFF DEPARTMENTS

Maricopa County Sheriff
 Salt Lake County Sheriff
 King County Sheriff
 Multnomah County Sheriff
 Pulaski County Sheriff
 Santa Clara County Sheriff
 Cook County Sheriff
 Jefferson Parish Sheriff

Oklahoma County Sheriff
 Virginia Beach Sheriff
 Nassau County Sheriff
 Orange County Sheriff
 Jefferson County Sheriff
 Allegheny County Sheriff
 Tulsa County Sheriff
 Riverside County Sheriff

STATE POLICE

Kansas Highway Patrol
 Iowa State Patrol
 Nevada Highway Patrol
 Arizona Department of Public Safety
 Washington State Patrol
 Indiana State Police
 Arkansas State Police
 Connecticut State Police
 New Jersey State Police

Maryland State Police
 Massachusetts State Police
 Ohio State Highway Patrol
 New York State Police
 Illinois State Police
 Vermont State Police
 Texas Department of Public Safety
 Utah Highway Patrol
 Delaware State Police

STATE CORRECTIONS

Wisconsin DOC
 Texas DCJ
 Montana DOC
 Idaho DOC
 Utah DOC
 Arizona DOC
 California DOC
 Kansas DOC
 South Carolina DOC

Oregon DOC
 Alaska DOC
 Ohio DRC
 Nevada DOC
 Louisiana DOC
 Oklahoma DOC
 Maryland DOC
 Alabama DOC
 Iowa DOC

A.15 INTERNATIONAL AGENCY USER LIST**NORTH AMERICA**

US Department of Defense
 US Customs & Border
 Protection
 US Federal Bureau of Prisons
 US Marshalls
 US Capitol Police
 New York Police Department
 Chicago Police Department
 Phoenix Police Department

California Department of
 Corrections
 Florida Department of
 Corrections
 Royal Canadian Mounted
 Police
 Customs Canada
 Toronto Police Department
 Vancouver Police Department

Ottawa Police Department
 Calgary Police Department
 Royal Cayman Island Police
 Edmonton Police Department
 Culiacan Sinaloa Police
 Department
 Monterrey Police Department
 Tonalá Guadalajara Police
 Department
 Hermosillo Sonora Police Dept

SOUTH AMERICA

Ecuador National Police
 El Salvador National Police

Guatemala National Police
 Uruguay National Police

EUROPE

Finland Police Forces
 Finland Frontieguard
 Sweden Police Forces
 Geneva Police
 Turkish Gendarme
 Military Police of Bulgaria
 Belgium Police Forces
 Hellenic Police – Greece
 Kosovo Ministry of Justice Correction Service

Finland Jail Office
 Norway Police Forces
 Denmark Police Forces
 International Police of Switzerland
 Netherlands Police - KLPD
 Ireland National Police – An Garda
 Kosovo Police
 Hungarian National Police
 Italian National Police

AFRICA

Ministry of the Interior of Egypt

MIDDLE EAST

Israeli Police
 Israeli Ministry of Defense

Israeli Prison Service
 Iraqi Police Forces

ASIA

Hong Kong Customs & Excise Dept
 Hong Kong Customs Police Department
 Hong Kong Police Force
 Taiwan Police Forces

Republic Singapore Navy
 Singapore Police Coast Guard
 Singapore Corrections

OCEANIA

New Zealand National Police
 Australian Prison Systems

New Zealand Corrections
 South Australian Police Tasmania Police
 Victoria Police



Aerosol Irritant Projector Instructor Test

Name: _____

Final Mark: _____ / 55

Date: _____

Pass Min 44/55 or 80%

Choose the best answer for each question.

1. **What are the two types of incapacitation identified in the SABRE® Aerosol Projector Irritant Instructor course?**
 - a. Fast incapacitation and slow incapacitation.
 - b. Physical incapacitation and psychological incapacitation.
 - c. Subject incapacitation and officer incapacitation.
 - d. None of the above.

2. **What is the primary goal when deploying SABRE® Aerosol Irritant Projectors?**
 - a. Physical incapacitation.
 - b. Psychological incapacitation.
 - c. Create a tactical advantage for the operator.
 - d. To escalate the resistance of the subject.

3. **What are the main tactical advantages that can be gained by properly deploying SABRE® aerosol irritant projectors?**
 - a. Restriction of the subject's visual information.
 - b. Restriction of the subject's deep lung breath.
 - c. Potentially causing the subject to focus inward on the pain.
 - d. All of the above.

4. **What are the four main tactical deployment advantages of SABRE® Aerosol Irritant Projectors?**
 - a. Distance, multiple assailants, universal application and area contamination.
 - b. Time, distance, contamination and decontamination.
 - c. Grip, stance, movement, and deployment.
 - d. Cheap, effective, portable, and easy to use.

5. **What is OC is short for?**

a. Orange County	c. Open Canister
b. Organized Crime	d. Oleoresin Capsicum

6. What is the **best** measure of pungency of an OC formulation in an aerosol projector?
- a. OC percentage.
 - b. Scoville Heat Units (SHU).
 - c. Scoville Content.
 - d. Percentage of Major Capsaicinoids.
7. What method is utilized by the manufacture of SABRE® (SEC), to ensure an accurate percentage of major capsaicinoids?
- a. High Performance Liquid Chromatography (HPLC)
 - b. The Scoville Taste Test (TSTT)
 - c. Positron Emission Tomography (PET)
 - d. High Speed Low Drag (HSLD)
8. What major capsaicinoid is considered the active ingredient in OC that causes the majority of physiological reactions in humans?
- a. Capsicum
 - b. Capsaicin
 - c. Oleoresin
 - d. Pepper
9. What does the term hydrophobic mean?
- a. A compound that is attracted to water.
 - b. A compound that is incapable of freezing.
 - c. A compound that can only exist in liquid form.
 - d. A compound that repels or is incapable of dissolving in water.
10. Why does capsaicin cause a burning sensation when applied to the human body?
- a. A chemical reaction occurs between the capsaicin and hydrogen in the body.
 - b. It raises the temperature of the skin dramatically.
 - c. It is an acid compound that burns the skin on contact.
 - d. Capsaicin stimulates human vanilloid receptors which are nerve pathways also sensitive to heat.
11. What propellant(s) are used in SABRE®'s Cone, Foam, Fog & Phantom?
- a. Pharmaceutical grade dymel.
 - b. Nicotine and oxygen.
 - c. Hydrogen and oxygen.
 - d. None of the above.
12. What are some of the psychological effects of Aerosol Irritant Projector exposure?
- a. Inward Focus on Pain, Anxiety, Fear, Panic, Anger & Sense of Helplessness
 - a. Burning of Skin, Skin Redness, Sneezing, Runny Nose
 - b. Distance, Multiple Assailants, Area Contamination
 - c. None of the above

- 13. Which of the following apply to CS Tear Gas?**
- a. Lacrimating Irritant
 - b. Classified as a solid, not a gas
 - c. The molecular target involves transient potential caution channels, subfamily A, member 1 or TRPA 1
 - d. All of the above
- 14. What is the propellant used in SABRE®'s H2O Series and Crossfire Stream & Gel?**
- a. Hydrogen
 - b. Oxygen
 - c. Nitrogen
 - d. None of the above.
- 15. How long will the ultraviolet marking agent be present on the body after contamination?**
- a. One minute.
 - b. One hour.
 - c. Approximately 48 hours.
 - d. Permanently.
- 16. What creates the high visibility reddish, orange color in some of the Level II & Level III SABRE® formulation?**
- a. Red dye number 7.
 - b. Crushed apple skin.
 - c. The propellant.
 - d. The natural occurring color of the food grade oleoresin capsicum.
- 17. What is the percentage of major capsaicinoids in level III, SABRE® Red formulation?**
- a. 1.33% major capsaicinoids.
 - b. 100% major capsaicinoids.
 - c. .003% major capsaicinoids.
 - d. There is no major capsaicinoids in SABRE® Red.
- 18. What SABRE® Aerosol Irritant Projectors system is NOT Electronic Immobilization Device compatible?**
- a. All SABRE® DPS formulations.
 - b. All SABRE® H2O formulations.
 - c. Only the SABRE® DPS stream delivery formulation.
 - d. None. All are compatible.
- 19. What are the six delivery systems available for SABRE® formulations?**
- a. Stream, Fog/Cone, Foam, Gel, Hose & Wand & Phantom delivery systems.
 - b. Low, medium, high, and extreme delivery systems.
 - c. One hand, two hand, thumb and finger delivery systems.
 - d. None of the above.

20. What is the point of aim for the stream, foam & gel delivery system?

- a. Forehead.
- b. Eyes.
- c. Eye brows.
- d. All exposed skin.

21. What is the point of aim for the fog/cone delivery system?

- a. Center of the face.
- b. Chest.
- c. Forehead.
- d. All exposed skin.

22. What is the Phantom Cell Buster hose and wand delivery system primarily used for?

- a. As an impact tool.
- b. Area contamination.
- c. Both A and B.
- d. None of the above.

23. What is the recommended minimal deployment distance for the SABRE® MK-2, MK-2TT, MK-3, MK-3.5, MK-4, MK-6, and any other detective or duty belt models?

- a. 1 foot. (1/3 of a meter).
- b. 2 feet. (2/3 of a meter).
- c. 3 feet (1 meter).
- d. There is no recommended minimal distance.

24. What is the recommended minimal deployment distance for the SABRE® MK-9 canister?

- a. 1 foot. (1/3 of a meter).
- b. 3 feet (1 meter).
- c. 6 feet (2 meters).
- d. There is no recommended minimal distance.

25. What is the recommended minimal deployment distance for the SABRE® MK-46 & MK-60 canister?

- a. 1 foot (1/3 of a meter).
- b. 6 feet (2 meters).
- c. 12 feet (4 meters).
- d. 24 plus feet (6 meters plus)

26. Which delivery systems have little to no effect on the respiratory system?

- a. Stream
- b. Gel
- c. Foam
- d. All of the above

27. What does the hydraulic needle effect describe?

- a. The mechanism in which the pressure of a moving liquid is sufficient enough to cause penetration of the skin.
- b. The method used by medical staff to ensure no air is in a needle prior to use.
- c. The effect of OC on skin that causes a needle pricking sensation.
- d. The method used to puncture and pressurize a canister.

- 28. SABRE® Crossfire third generation canisters will fire from what position?**
- Only from a straight up and down position.
 - Only from a straight up and down or inverted position.
 - Only after being vigorously shaken.
 - Continuously from any position.
- 29. What is the effective range of the SABRE® MK-3 / MK-4 stream delivery system?**
- 1 foot. (1/3 of a meter).
 - 3 feet. (1 meter)
 - 3 to 6 feet (Between 1 to 2 meters)
 - 12 to 15 feet (Between 4 to 5 meters) & w/ Crossfire 15-20 feet (Between 5 to 6 meters)
- 30. What should always be worn by anyone being exposed to SABRE® inert training products?**
- Duty belt with all weapons/force options.
 - Appropriate eye protection.
 - Rubber or latex gloves.
 - A hard hat.
- 31. What is the proper grip for a Duty Belt Flip Top Aerosol Irritant Projector?**
- Four finger grip with thumb on actuator
 - Index finger
 - Two handed grip
 - None of the above
- 32. Other than the initial breaking of the security tab, what must be removed before the MK-9 & MK-21 trigger can depress and fire?**
- The safety pin.
 - The warning label.
 - The shipping tape.
 - Both b and c.
- 33. Why is it important to utilize the two handed retention grip while deploying the SABRE® MK-9 & MK-21?**
- It provides a stable vertical deployment platform.
 - It looks intimidating and may cause a subject to stop resisting.
 - A subject can grab the canister and using minimal force, break it from the trigger assembly.
 - So the operator can use their arms to shield from any blows.
- 34. What is the effective distance of the MK-9 High Volume Stream, Gel and Heavy Fogger delivery system?**
- 1 foot (1/3 of a meter).
 - 12 to 15 feet. (Between 3 to 4 meters)
 - 25 to 30 feet. (Between 8 to 10 meters)
 - Less than the MK-9 foam delivery system.

- 35. What part of the Cell Buster has the potential of being used as a weapon/force option, if secured by the subject?**
- a. The trigger.
 - b. The hose.
 - c. The wand.
 - d. B & C
- 36. The operator should always check the MK-46 & MK-60 gauge to ensure it is in what color zone?**
- a. Red zone.
 - b. Yellow zone.
 - c. Green zone.
 - d. Blue zone.
- 37. What should operators always ensure is in place when transporting the MK-46 & MK-60 canister in a vehicle?**
- a. The safety pin.
 - b. The carrying harness.
 - c. A safety placard.
 - d. A valve plug.
- 38. What is the only safety mechanism for the SABRE® MK-3 and MK-5 aerosol grenades?**
- a. Safety pin.
 - b. Fuse assembly.
 - c. Trigger guard.
 - d. Canister cap.
- 39. What is the time delay on the SABRE® MK-3 and MK-5 aerosol grenades?**
- a. Half second.
 - b. One second.
 - c. Various on length of fuse.
 - d. There is no delay, the formulation instantly deploys once the actuator is depressed.
- 40. Which are some of the contributing factors to death proximal to restraint?**
- a. Positional Asphyxia and Respiratory Neck Restraints.
 - b. Excited Delirium and Cocaine or Other Illicit Stimulants.
 - c. Preexisting Medical Conditions.
 - d. All of the above.
- 41. What is the first step in subject decontamination?**
- a. Remove the subject from the contaminated area.
 - b. Wipe off face with wet clothe.
 - c. Apply copious clean water to face.
 - d. Apply SABRE® Decon.
- 42. Who should be the only individuals allowed to remove contact lenses from a contaminated subject?**
- a. The subject.
 - b. Qualified Medical Personnel.
 - c. Both a and b.
 - d. Contact lenses should not be removed before decontamination.

- 43. What should be done if the subject indicates they have a preexisting medical condition, show signs of distress or request medical assistance?**
- Allow them access to first aid kit.
 - Consult with your supervisor.
 - Keep monitoring to see if the situation gets worse.
 - Immediately request the attendance of Emergency Medical Services.
- 44. If an area is left contaminated by OC, how long will it take for natural biodegrading to take place?**
- 12 hours.
 - 24 hours.
 - 7 days.
 - 10 days.
- 45. Agencies expose themselves to liability if they carry Aerosol Irritant Projectors without an appropriate what in place?**
- Use of force policy and reporting procedure.
 - Ample storage facility.
 - Quick draw OC holsters.
 - Dashboard camera system.
- 46. Regardless of where the agency places the SABRE® Aerosol Irritant Projector in relation to other weapons/force options, officers must be able to clearly articulate that they precluded lower weapons/force options as being what?**
- Ineffective.
 - Inappropriate for the situation.
 - A or B.
 - Too time consuming.
- 47. Which is NOT one of the four benefits of voluntary contamination for students?**
- Contamination during training will help prepare the student to deal with cross contamination during a real-world encounter.
 - Contamination during training will help prepare the student with skills to deal with an OC attack from violent subject.
 - Contamination during training will help assist the officer in providing evidence during court proceedings.
 - Contamination during training will help prevent any future contaminations from having any effect on the student.
- 48. What should be signed by student prior to being exposed to SABRE® Aerosol Irritant Projectors?**
- Written test.
 - SABRE® Contamination Waiver.
 - Parental consent form.
 - Nothing is required before student spraying.

- 49. SABRE® Decon Cleanse & Soothe should never be applied to what part of the body?**
- Exposed skin.
 - Hair.
 - Face.
 - Eyes.
- 50. Who is ultimately the best judge of whether a student is decontaminated?**
- Student.
 - Instructor.
 - Student's assistant.
 - Uninvolved, third party.
- 51. After saline solution, what is the most effective substance for decontamination of the eyes?**
- Milk.
 - Baby shampoo.
 - Vinegar.
 - Cool, clean water.
- 52. To meet SABRE®'s standards, how long should a student wait after having LASIK or other corrective eye surgery before voluntary contamination?**
- One week.
 - 1 month.
 - 3 months.
 - 6 months.
- 53. SABRE® Decon products should never be used on whom?**
- Children.
 - Anyone pregnant.
 - Anyone nursing.
 - All of the above.
- 54. Unless justified and absolutely necessary, operators should avoid deploying aerosol irritant projectors:**
- In confined areas with innocent third parties.
 - On any subject operating a motor vehicle.
 - On any subject in a dangerous environment such as a roof top.
 - All of the above.
- 55. Which of the following are included in the list of preexisting medical conditions which would prevent a student from participating in the SABRE® contamination exercises?**
- Eye Disorders, Epilepsy, and Heart Problems
 - Respiratory Problems, Lung Problems, and Diabetes
 - High Blood Pressure or Other Medical Issues
 - All of the above