

BILL BLACKWOOD
LAW ENFORCEMENT MANAGEMENT INSTITUTE OF TEXAS

**THE USE OF OLEORESIN CAPSICUM (OC) AEROSOL SPRAY
IN LAW ENFORCEMENT**

A RESEARCH PROJECT PAPER
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BY
SERGEANT JERRY LAWING
ROCKPORT POLICE DEPARTMENT
ROCKPORT, TEXAS

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254

TABLE OF CONTENTS

I.	Introduction.....	1
II.	History of Oleoresin Capsicum.....	3
III.	Oleoresin Properties and Effects.....	5
	a. Dispersal of Oleoresin Capsicum.....	6
	b. Oleoresin Capsicum Concentration.....	7
	c. Effects of Tear Gas Agents.....	9
	d. Effects of Oleoresin Capsicum.....	10
	e. Decontamination Procedures for Oleoresin Capsicum...	12
IV.	Use of Force, Training and Documentation.....	13
	a. Use of Force.....	13
	b. Training.....	14
V.	Medical Considerations.....	21
	a. Research of Oleoresin Capsicum.....	23
	b. First Medical Link.....	26
VI.	Review of Non-Lethal Case Law.....	31
	a. Oleoresin Capsicum as a Non-Lethal Force.....	34
VII.	Conclusion.....	37

I. INTRODUCTION

The United States Judicial System has decided that it is the role of the law enforcement officer to control certain types of resistive behavior. With a major emphasis on "control", law enforcement agencies throughout the country have been searching for non-lethal ways to subdue suspects who are violent, emotionally unstable, or overdosed on drugs. A plethora of technological breakthroughs were heralded as "magic bullets" that would allow police to take suspects into custody without harm to the officer or the civilian. These technologies include chemical agents, stun guns and their variants, expandable batons, and the latest developments in hand to hand combat. Many of these technologies were deemed dangerous and have been abandoned by law enforcement officials.

Oleoresin Capsicum (OC), also known as pepper spray, was introduced to law enforcement and has gained popularity over the last few years. Oleoresin Capsicum has been touted by law enforcement to be the newest, most effective, and least dangerous non-lethal weapon on the market today.

The purpose of this research paper is to examine the history of Oleoresin Capsicum spray. The research paper will determine what Oleoresin Capsicum is and what effects Oleoresin Capsicum spray has on people who are considered to be violent, emotionally unstable, or overdosed on drugs. The paper will examine the long and short term health hazards to the people who have been sprayed

by Oleoresin Capsicum.

This research paper will look at the Fourth Amendment and its protection against the use of unnecessary or excessive force. This paper will provide some insight into the training requirements for officers who carry and use the Oleoresin Capsicum. This paper will take a brief look at what research has been completed to determine if Oleoresin Capsicum is a less than lethal force option. Finally, this research paper will examine the legal aspect of using the Oleoresin Capsicum aerosol spray.

This research paper will provide law enforcement administrators with the necessary knowledge to make an informative decision on whether or not to implement the program within their respective areas.

II. History of Oleoresin Capsicum

Oleoresin Capsicum (OC) or pepper spray was first developed for campers to ward off bear attacks in the woods. The product was tested for six years by the Border Grizzly Project, a former research group that was affiliated with the University of Montana. The effects are temporary and will not cause any injury to the bears. Dr. Charles Jonkel, a project zoologist stated "we never had a single case where it failed." (Lloyd 1992)

Oleoresin Capsicum was packaged in smaller containers and marketed to the public as a weapon to use against muggers and rapist. The success of the spray prompted law enforcement officials to start looking at the Oleoresin Capsicum spray as a force option.

The Oleoresin Capsicum spray was introduced to law enforcement in 1976 by CAP-STUN. It has undergone field testing and proven to be effective in most cases, without harmful after-effects. The testing was completed by many departments and agencies throughout the United States. In 1989, the Firearms Training Unit of the Federal Bureau of Investigation Academy, Quantico, Virginia, completed three years of intensive research on Oleoresin Capsicum. As a direct result of the research, the Federal Bureau of Investigations (FBI) authorized the use of Oleoresin Capsicum by its agents and special units.

Since 1976, there have been no reported injuries or deaths caused by the Oleoresin Capsicum spray. The Oleoresin Capsicum

spray has been proven to be effective on subjects under the influence of alcohol or drugs and/or individuals who are emotionally disturbed without causing any type of permanent damage or injury.

Oleoresin Capsicum spray is gaining acceptance and popularity among law enforcement agencies and has demonstrated a wide variety of uses against domestic violence and wild animals. Oleoresin Capsicum has currently become the leader in the chemical sprays. Many departments and agencies have adopted the use of Oleoresin Capsicum in their use of force policies across the United States.

III. Oleoresin Capsicum Properties and Effects

Oleoresin is a mixture of an essential oil and resin found in nature. Capsicum is any solanaceous plant of the genus capsicum, as *C. Frutescens*, the common pepper of the garden which occurs in many varieties that range from mild to hot. It's pungent seeds, also ranging from mild to hot are enclosed in a pod or bell-shaped pericap. A simplified version would be a derivative of cayenne pepper which is a natural product listed in many food groups.

(MSI 1994)

Oleoresin Capsicum aerosol spray is an organically based, less-than-lethal weapon designed to incapacitate a person or animal, with no lasting after-effects. In most cases the Oleoresin Capsicum spray will immobilize an attacking human or animal for up to 45 minutes.

Oleoresin Capsicum is an inflammatory agent that causes rapid physiological and psychological actions. Contact with Oleoresin Capsicum aerosol spray mist incapacitates individuals by inducing an almost immediate burning sensation to the skin, but more important, burning, tearing, and swelling of the eyes. The eyes will almost immediately close, rendering temporary blindness.

When the agent is inhaled, the respiratory tract is inflamed immediately swelling the mucous membranes that lines the breathing passages. The swelling of the mucous membranes causes restrictive breathing, causing the individual who was effected to breath short shallow breaths.

Dispersal of Oleoresin Capsicum

In order for an Oleoresin Capsicum product to be dispersed, it requires a carrier and a propellant. The active ingredient in Oleoresin Capsicum is capsaicin, derived from cayenne peppers. The Oleoresin Capsicum extract is a very thick and heavy agent. For it to be aerosolized, Oleoresin Capsicum must be combined with a carrier and then expelled out of the canister by a propellant.

There are basically two types of carriers for the active ingredient, isopropyl alcohol based carrier, or non-alcohol based carrier. One of the most important decisions to make is which one to use. A particular concern is the potential inflammability of the pepper spray products that use isopropyl alcohol as a carrier. In one reported incident, police sprayed an armed, extremely agitated adolescent with a isopropyl alcohol based carrier pepper spray and then shot him with a stun gun; the charge from the stun gun apparently ignited the pepper spray carrier liquid on his clothing and set him on fire.

Some manufactures of the isopropyl alcohol based carriers believe that the alcohol based products are better because they work better under all weather conditions. They also believe that the alcohol based carriers are better at atomizing the active ingredient, opening pores and dissolving skin oils. Advocates contend that the reaction of pores and skin oils may reduce the time it takes the product to take affect. However, on all labels of the alcohol based carriers it states that it should not be used near flames or sparks.

The nonflammable carriers are industrial chemicals like Freon, Dymel, methylene chloride, and others. These chemicals in sufficient quantities, may be ozone depleting, toxic, or carcinogenic. With new Environmental Protection Agency (EPA) regulations and legislation from the Montreal Protocol (ozone depletion), many prior carriers and propellants have been outlawed. It is important to identify the specific carrier and propellant with the individual type of Oleoresin Capsicum aerosol spray.

Oleoresin Capsicum Concentration

The strength of the aerosol spray does not have any thing to do with the percent of volume. The aerosol sprays are available in a wide variety of different concentrations. Five to ten percent concentrations have been developed for law enforcement use. The percent is measured by volume, per canister of aerosol spray. This could be very misleading and confusing. The strength of the Oleoresin Capsicum spray depends on the grind and quality of the pepper before the oil is extracted. The strength is measured in Scoville Heat Units (SHU's). The higher the SHU's the greater the inflammatory capacity of the Oleoresin Capsicum spray.

Oleoresin Capsicum formulations wherein the Scoville Heat Units exceed 1,500,000 significantly increase the potential for burns, particularly in fair skinned persons or others predisposed to first degree or higher burns. The measure of Scoville Heat Units is not a scientific measure, but is based on what is

essentially a taste test.

According to Federal regulations, manufactures of Oleoresin Capsicum and other chemical agents are required to make available a Material Safety Data Sheet (MSDS). The MSDS is written to comply with Occupational Safety and Health Administration's (OSHA's) Hazardous Communications Standards regarding hazardous materials contained in a product. Departments who keep Oleoresin Capsicum aerosol spray on hand should have a copy of the MSDS on hand for inspection.

Law enforcement administrators have a number of things to consider when determining which Oleoresin Capsicum aerosol spray to use. There is a wide variety of vendors and product selection. Aside from the cost, some of these choices include product formulation, concentration level, and range. Other considerations would be the spray pattern (fog, stream, mist, or foam), trigger mechanism, and the presence or absence of a safety devise. Agencies should insist that the manufacture provide them with copies of any manual updates or product warnings for the life of the product. An important consideration would be what type of environment will the product be used in. An example would be that it may be all right for the patrol officer to carry the isopropyl alcohol based product for normal or routine patrol situations requiring an officer or team of officers to subdue hostile suspects where no flames or sparks are present. Conversely, large crowd dispersement situations involving a large area saturation may require a non-flammable carrier. The needs

of a small police department in a rural setting would differ greatly. In all cases, the law enforcement administrator should consult legal counsel, fire and rescue, and insurance experts before making a final decision.

Effects of Tear Gas Agents

The traditional Chloroacetophenone (CN) and Orthochlorobenzalmalononitrile (CS) tear gas agents causes painful tearing, burning of the skin and respiratory discomfort, but does not have the same inflammation and swelling of the mucous membranes that Oleoresin Capsicum does. The distinction is very important. Individuals who have been sprayed with the CN or CS tear gas who are extremely agitated, mentally ill, or under the influence of drugs or alcohol may not be affected or as affected by the spray.

For an example, if an individual, who has a particularly high threshold to pain or is oblivious to pain, is sprayed with CN or CS tear gas in the eyes the subject may be able to keep their eyes open. The respiratory system will be affected, but not inflamed, allowing the individual to continue to breath with little or no effort. This would allow the individual to continue to offer resistance or physically fight with the officer. This reaction is characteristic of people who are under the influence of hallucinogenic drugs such as phencyclidine (PCP), heroin, cocaine, or methamphetamine.

Effects of Oleoresin Capsicum

If an individual was sprayed with Oleoresin Capsicum, they would have the same physiological affect as anyone else who may be extremely agitated, mentally ill, or under the influence of drugs or alcohol. Whether or not the subject felt pain, their eyes would involuntarily swell shut causing temporary blindness. Also upon exposure, the mucous membranes of the respiratory tract swell resulting in shortness of breath and the loss of strength and coordination. While reaction to the Oleoresin Capsicum spray incapacitates the individual, the law enforcement officer has the opportunity to secure the subject under safer conditions.

Sergeant Hugh Mills, supervisor of physical training and defensive tactics for the Kansas City, Missouri, Police Department, has observed both the advantages and limitations of Oleoresin Capsicum in his experience with subjects under the influence of drugs, mainly cocaine and PCP. "We discovered that some subjects under PCP were not affected by the pain factor. Because the swelling of the mucous membranes and closing of the eyes is a physiological reaction rather than a pain reaction, the worst case situation is that although the subjects don't feel pain, they can't see either. Police would rather deal with a person with impaired vision." (NIJ 1994)

The Kansas City Police Department has averaged 800 applications of Oleoresin Capsicum over the past two years. Based on this experience, Sergeant Mills reported good to excellent results from its use on drug users. He explained that

excellent results mean that the subjects were immobilized. On the other hand, good results did not immobilize the subject but caused temporary blindness, which still allowed the officer to subdue the subject. (NIJ 1994)

I have personally experienced the affects of Oleoresin Capsicum. The first time I encountered Oleoresin Capsicum was during a routine training course. As part of the course, we were all subjected to the aerosol spray. Immediately after being sprayed, I felt as if I had been slapped in the face. My eyes were on fire and felt as if a thousand pins were sticking in them. My eyes immediately closed shut. The skin on my face was on fire. It felt as if I had put my face in a vat of hot boiling grease. My breath was taken away and I started coughing, gagging, and gasping for air. I was scared and disorientated. The Oleoresin Capsicum had interrupted my intended thought process and caused a severe loss of coordination. I was blinded and helpless. The only thing I could think about was to find water to wash the fiery substance from my eyes and face. The effects lasted about forty five minutes. That was the longest period of intense pain I have ever experienced. Then, almost as fast as the pain had hit, it went away as if it never had happened. All that remained was the ever lasting memory of the intense pain that I felt. I realized the tremendous advantages to the Oleoresin Capsicum aerosol spray. There was no way that I could have offered any type of resistance or physically fought with anyone.

Decontamination Procedures for Oleoresin Capsicum

A major benefit to using Oleoresin Capsicum is that it is completely biodegradable. Unlike chemical irritants, Oleoresin Capsicum will evaporate and has not been found to linger in clothing or effected areas. An important trait of this product is that decontamination procedures are virtually unnecessary. Personal decontamination generally consist of water and ice. The use of ventilation by opening doors or windows or the use of high speed fans adequately decontaminates the area and vehicle. On hard surfaces or vinyl seats simply wash with soap and water. If exposed food products, fruits or vegetables are contaminated simply wash them off to ready them for human consumption.

IV. Use of Force, Training and Documentation

One of the most important issues to be addressed in a department's training program is the force continuum and the effects Oleoresin Capsicum aerosol sprays place on it. The force continuum is a list of force options available to an officer from the lowest to the highest. The mere presence of a law enforcement officer offers the lowest form of force. Since the presence of a law enforcement officer tends to influence people's actions, presence often serves as the only necessary force. Verbal interaction serves as the second level of force. Very often speech is necessary to influence people more than the silent presence of an officer. Empty hand tactics serves as the next level of force. When the officer is met with passive resistance, the levels of force would escalate in a similar manner until the continuum reaches the highest level, deadly force.

Use of Force

Where does the chemical weapon Oleoresin Capsicum fit into the continuum? That question has been the center of great controversy between law enforcement administrators. The traditional approach would be to place the chemical weapon in the category of intermediate weapons since it does meet the description. Many trainers and law enforcement officials, however, take a different approach with Oleoresin Capsicum products since there has never been a single case where Oleoresin

Capsicum has caused a serious injury to a suspect. A suspect has a greater chance of receiving injuries from a straight arm bar wrist lock or similar type of escort positions. The Oleoresin Capsicum aerosol spray can be introduced at a much earlier stage in the use of force continuum.

The FBI has been using Oleoresin Capsicum products since 1989 and teaches their agents to apply the chemical agent before touching a suspect that has displayed obvious signs of resistance. Many other agencies across the United States have adopted the same policy. Further more, agencies who have the Oleoresin Capsicum products lower in the use of force continuum have shown a greater reduction of injuries in suspects and officers.

The key issue to the problem of where to put the Oleoresin Capsicum products on the use of force continuum is community acceptance. The community will normally ask these questions. First, was the absolute minimal force used against the suspect in order to effect an arrest? Second, did the force used stop the resistance or threat? Third, how did it stop the threat or aggression? Fourth, was there any permanent injury? Oleoresin Capsicum products have held up to these issues very well.

Training

Whichever approach is adopted by the agency, it must be formalized by policy and made a part of the training program. If not, the agency is subject to accusations of arbitrary and

inconsistent applications of force. That would not be a desirable position for an agency to be in now that the public attention has been focused on the use of force issues.

The Oleoresin Capsicum aerosol sprays are more effective than the ones that utilize CN or CS gas. The lessons learned years ago have not been forgotten. In the past, officers thought "if a little is good, a lot must be much better". The Oleoresin Capsicum aerosol spray should not be issued or allowed to be utilized in the field without a comprehensive training program in the use of Oleoresin Capsicum products. The use of Oleoresin Capsicum aerosol spray would be greatly enhanced through proper training as well as helping to protect the officer and agency through any type of litigation. The training must go past the technical aspects of the Oleoresin Capsicum, such as the symptomatic effects produced by rapid physiological and sociological reactions, first aid and decontamination. Legal and tactical issues must be examined in order to have a effective program.

After the agency has formulated a policy on the use of Oleoresin Capsicum aerosol spray, the officers should be trained in all aspects of it, beginning with officer presence. Since most communication is non-verbal, it is extremely important that the officer simultaneously sends the correct message and remain alert to the message being sent by the suspect. The officer remaining alert can control the situation and minimize the force needed to maintain that control.

Officers must be trained in a selection of force options from the continuum from start to finish. To train an officer in only one force option or another without putting into context all available force options would result in a lack of knowledge to make the appropriate force decisions. In addition an officer must have the opportunity to make transitions from one force option to another as the suspect's resistance raises or lowers. It is imperative that Officers are knowledgeable in de-escalation, as well as, mobile in the force continuum. (DuVernay 1994)

Further, officers need to learn certain technical skills. Application techniques are a critical point and not as simple as they sound. These techniques involve a fumble-free draw from the holster, use of a spray technique that dispenses an optimum amount of Oleoresin Capsicum, proper verbal directions, efficient fluid movement to keep a tactical advantage, fumble-free reholstering, and finally, appropriate control techniques that result in a properly handcuffed suspect. (DuVernay 1994)

The draw starts with the proper choices of canister, holster, carry location, and unholstering technique. The canister must be designed to be used quickly and effectively under stressful situations, accurate when discharged, and safe from unintentional discharges. The officer must decide to carry the canister on their strong or weak side. There are two schools of thought that address this problem. Some advocates believe that the spray should be carried on the strong side and drawn with the strong hand. The strong side of a right handed person

is the right, and for a left handed person, the left. They believe that under stress, when attempting to use fine motor skills that involve dexterity and coordination, the strong hand will better accomplish the task. On the other hand, some advocates believe that the canister should be carried on the weak side, leaving the strong hand free to draw a weapon.

All techniques that involve fine motor skills, dexterity and coordination should be taught around the "three minute rule" which means, that if an officer cannot learn the basic mechanics of a technique in three minutes or less, in all probability, the officer will not be able to retain or utilize the techniques under stress or actual resistance. Once the technique is taught, the officer will practice the technique of meeting resistance from another under stress until it becomes routine for the officer to handle these type of combat situations.

Command presence and verbal commands before, during, and after the confrontation must also be taught and practiced. Proper stance and positioning combined with clear concise verbal commands, will gain cooperation from a suspect in most cases. A good aggressive stance would be the officers strong leg placed back, canister held in strong hand, arm fully extended, with the weak hand in a palm-down position on top of strong wrist. The commands are simply warnings that attempt to gain the suspect's compliance. Commands such as "Why don't you stay there until I complete my investigation" and if the subject refuses, tell the subject to "Stay back or I will have to spray you with pepper

spray, I do not want to hurt you with pepper spray". If the subject is still refusing, order the subject to "stop resisting or you will be sprayed with the pepper spray". What you have done is completed the ask, tell, and order theory. The officer has also shown reluctance to use the pepper spray and has climbed up the use of force continuum and is personally ready for the confrontation.

If the pepper spray is dispersed, clear and concise commands are needed to let the suspect know exactly what you want him to comply with. The subject should be ordered into a standing or prone handcuffing position. Assure the subject that he will be treated and the effects will dissipate shortly. Then, handcuff the subject using extreme caution. Pepper spray is not fail safe. On intoxicated subjects a prone handcuffing position is preferred due to the disorienting effects of Oleoresin Capsicum. Regardless of the handcuffing position chosen, officers should approach the subject from the side or rear and never from the front.

It is important to realize that a goal oriented subject can still attack an officer even after being sprayed with Oleoresin Capsicum several times. Effectiveness can vary depending on how aggressive and goal oriented the subject is. Most of the aggressive goal oriented subjects can reach their desired goal prior to the effects of pepper spray taking place. The officer must remember that the effects will take place regardless and always maintain a tactical advantage.

Officers should continue verbal commands. After gaining compliance, the subject should be reassured that nothing else is going to happen as long as the officer has the subject's cooperation. At this point the officer may begin decontamination procedures. If no water is available, the subject may stand into the wind. The wind alone will cool down the subject and allow time for the pepper spray to dissipate. While remaining in control the officer demonstrating a behavior of concern for the subject and continues de-escalation of the situation.

The subject should be closely monitored until the pepper spray dissipates and the symptoms disappear, usually 30 to 45 minutes after the subject has been sprayed. The subject should not be left unsupervised for two hours after being sprayed and must be checked for possible medical reaction. Medical care such as Rescue Squad, Emergency Medical Services, or a licensed Physician is advised if the symptoms persist after forty five minutes, or if the subject who has been sprayed requests medical attention at any time.

In some agencies, to be certified to carry pepper spray, the officers themselves have to personally experience the effects of pepper spray. The contention is that Oleoresin Capsicum is reported safe, and it is less than lethal. Officers who are sprayed with pepper spray have great confidence in the product and compassion for the subject who has been sprayed. Furthermore, officers develop a healthy respect for the product and understand the dangers of accidental discharge, over spraying

of a subject, contaminating of other officers, or in the worst case scenario, letting the product fall into the hands of one who wishes to inflict harm. The officers who have been sprayed and have experienced the effects of pepper spray will be prepared for any personal or area contamination by Oleoresin Capsicum, armed with the knowledge that he will survive the effects of Oleoresin Capsicum, the officer will be able to act accordingly without panic.

Officers also need to be trained in the reporting of every incident involving the use of pepper spray. Proper documentation will assist in the prosecution of a subject, as well as, defense for the officer against any allegations of excessive force. The reports should be clear and concise starting with the officers first hand knowledge of the incident. The report should include the subjects actions, as well as, any statements made at the location. As the officer escalates in the use of force continuum, his actions are also documented, before, during, and after. It is very critical to include the officers actions after Oleoresin Capsicum has been utilized against a subject. Reporting what happened after Oleoresin Capsicum has been deployed will show the de-escalation in the use of force as the resistance of the subject declined.

V. Medical Considerations

An important medical consideration to remember when using Oleoresin Capsicum is that Capsicum is a vasodilator, its inflammatory properties are a result of dilating blood vessels in the affected area. This action increases blood flow to the affected area resulting in minute swelling. When this occurs within the nasopharyngeal tract, the physiological effects trigger a psychological response. This diversion of pain in the eyes and face, and gasping for air, produces an involuntary response which indirectly addresses our most primordial fears (blindness and suffocation) and causes confusion and disorientation. The conscious thought process is impacted significantly and distracts the focus of the brain. From a safety standpoint this is very important. Officers must exercise extreme caution and always keep control of the subject who has been sprayed with pepper spray. This type of reaction will remove the subject's attention from the officer and centers it on themselves.

The perceived inability to breath can trigger a panic response which manifests itself in Acute Hyperventilation Syndrome. This is particularly true in cases of intoxicated persons or those already in a state of anxiety. (MSI 1994)

Acute Hyperventilation Syndrome

SIGNS

SYMPTOMS

Rapid breathing	" Inability to catch breath
Pale, diaphoretic	" Tightness in chest "
Posturing	" Tingling of hands @ feet "
Irritability @ increased anxiety	" Panic Verbalization "

Acute Hyperventilation Syndrome (AHS) is best treated by reassuring the person that they are alright. Have the person breath slowly and deeply to aid in reducing the anxiety level they are experiencing. In severe cases it may be necessary to have the subject breath into a paper or plastic bag to restore blood CO₂ levels. Depletion of CO₂ levels results in respiratory and eventually metabolic acidosis. Untreated AHS will progress into loss of unconsciousness. As in all cases of unconsciousness, medical intervention is recommended. (MSI 1994)

Allergic reaction (Anaphylaxis) to members of the pepper family occurs in approximately five percent of the general population. While most allergic reactions are not life threatening, it is necessary to provide medical treatment to any person believed to be having an allergic reaction to Oleoresin Capsicum ingestion. Any person who has been exposed to an Oleoresin Capsicum Agent and complains of itching, hives, difficulty in swallowing, facial swelling (particularly around the eyes, lips or nose) or who states that they have a known allergy to any variety of pepper should be evaluated by medical

personal with out delay. Emergency Medical Service personnel should have knowledge of an agency's guidelines for use of Oleoresin Capsicum. Basic life support treatment for Anaphylaxis secondary to Oleoresin Capsicum ingestion is airway maintenance and possible oxygen administration where indicated.

Pharmacologic treatment includes administration of 1:1,000 Epinephrine (SC,IM or IV or Diphenhydramine IV). (MSI 1994)

A particular concern for the law enforcement administer would be in Oleoresin Capsicum formulations wherein the Scoville Heat Units (SHU's) exceed 1,500,000. This significantly increases the potential for minor burns in subjects who are fair skinned or sunburn easily. Any person who exhibits sunburn like redness more than one hour after being sprayed with Oleoresin Capsicum and decontaminated or who shows any evidence of blistering should receive medical treatment.

Research of Oleoresin Capsicum

Oleoresin Capsicum was first tested by a research group that was affiliated with the University of Montana. Dr. Jonkel, the project zoologist, stated that "the effects were temporary and they never had a single case where it failed." The research was conducted in an open environment on different types of Bears.

The United States Army Chemical Research and Development Center (CRDEC), conducted research and experiments on the effects of Oleoresin Capsicum on laboratory animals. The experiments consisted of subjecting the animals to Oleoresin Capsicum by

means of gastrointestinal doses, subcutaneous injections, liquid droplets to the eyes, and skin patch test. CRDEC was unable to show any type of short or long term mutagenic or carcinogenic effects on the laboratory animals that were exposed to Oleoresin Capsicum.

During the period July, 1978 to May, 1989, the Federal Bureau of Investigation (FBI), Firearms Training Unit (FTU), Quantico, Virginia, conducted research on the effects of Oleoresin Capsicum on individuals. There were 828 individuals sprayed with Oleoresin Capsicum ranging from one percent to five percent solution. The FTU varied the manner in which the Oleoresin Capsicum was dispersed on the individuals. Some of the individuals were sprayed directly in the face, while others were sprayed in an open environment, and others were sprayed in a closed environment. The FTU observed individuals sprayed with 1 percent solution and with five percent solution, also a variety of spray burst was used ranging from two second burst to forty five second bursts.

The FTU observed that the individuals who were sprayed with a higher content of Oleoresin Capsicum to have more severe physical effects. Further the individuals who were sprayed with three second burst or three one second bursts experienced more severe physical effects. The FTU observed the physical effects to range from severe twitching of the eyes to involuntary closing of the eyes. The respiratory track was immediately inflamed causing the mucous membranes to swell, consisting of coughing,

gagging, and shortness of breath. The individuals skin was showed inflammation ranging from slight to acute burning sensation and redness of the skin. There were a few individuals who experienced minor cases of nausea and catatonia. The FTU went on to report that in all the individuals who were tested they did not experience any type of long term effects from the Oleoresin Capsicum.

The FTU examined the decontamination of individuals who were tested which consisted of flushing the eyes and face with cool water. Some of the burning sensation persisted; therefore, it was necessary to let them wash the effected areas with soap and water for further decontamination. Also ice was used in some cases to relieve the persistent burning sensation. Discoloration of the skin of the individuals ranged from a slight discoloration to a bright red. The range depended on the complexion of the individual and the dose of Oleoresin Capsicum sprayed. The discoloration would disappear from two minutes to forty minutes after decontamination at which time the skin exhibited no further irritation developing.

Upper respiratory inflammation was experienced on all individuals who were exposed to Oleoresin Capsicum. The FTU reported that within two minutes after each test the respiratory functions returned back to normal. Visual acuity returned within two to five minutes after decontamination and no further problems were reported. There was no further discomfort experienced by any of the individuals who were sprayed with Oleoresin Capsicum.

The FTU went on to report that Oleoresin Capsicum will dissipate from an individuals clothing in a relatively short period of time. Area decontamination can be accomplished within 30 minutes after contamination and consists of ventilating the enclosed area.

First Medical Link

Since August 1992, there were isolated accounts of deaths in people who have been sprayed with Oleoresin Capsicum. These accounts were misleading because the deaths were from other reasons than Oleoresin Capsicum spray. None of the fatalities were directly linked to the use of Oleoresin Capsicum because the evidence always conclusively showed that the sprayed individual's death was inevitably from other causes. Most of the in-custody deaths were from drug over doses, involving cocaine, methamphetamine and PCP. Other deaths could be contributed to positional asphyxiation. It was a fatality on July 11, 1993, in Concord, North Carolina, that generated the first medical link between Oleoresin Capsicum and the death of a individual.

It was reported that in the early morning hours on July 11, 1993, a Concord, North Carolina man, Angelo Robinson was involved in a confrontation with Concord Police. Angelo Robinson was 24 years of age, weighing in excess of 300 pounds, and a African-American male. Angelo Robinson was part of a disturbance at a local restaurant. The incident was causing civil disorder and Concord Police attempted to take Angelo Robinson into custody.

Angelo Robinson was verbally combative and physically resisted officers attempts to take him into custody. A Concord officer sprayed Angelo Robinson with pepper spray in the face. Angelo Robinson was put in a four point restraint (hog tied) and placed in the back seat of the police car. Officers reports showed that Angelo Robinson complained of respiratory difficulty. Angelo Robinson was transported to the police station, where he was found unresponsive. Angelo Robinson was pronounced dead at 5:44 A.M.

On August 26, 1993, the office of Chief Medical Examiner of Chapel Hill, North Carolina released an autopsy report completed by Lisa M. Flannagan M.D., Pathologist.

The state office concluded:

"The autopsy report on Angelo Robinson is now final. In our best medical judgment, Mr. Robinson died from asphyxia due to bronchospasm precipitated by pepper spray. Mr. Robinson was found to have an underlying marked chronic inflammatory condition in his lungs that most likely predisposed him to have a serious reaction to an external irritant such as pepper spray. His mildly enlarged heart possibly made him more susceptible to cardiac arrhythmia under these conditions. There was no physical injury to explain his death." (Flannagan 1993)

A brief summary and interpretation of the autopsy report showed that Angelo Robinson was a 24 year-old, black male who collapsed soon after being sprayed with a pepper spray (Oleoresin Capsicum) while being arrested for disorderly conduct. After being sprayed with the substance, the decedent reportedly complained of respiratory difficulty and subsequently collapsed. The decedent was transported to the police station where he was found to be unresponsive. Aggressive resuscitation efforts were unsuccessful. The decedent was pronounced dead at 5:44 A.M.

The autopsy examination reported the decedent to have abrasions of the right lateral abdomen, right shoulder region, right wrist, left medial elbow and lateral left arm. There were also abrasions above the right eyebrow and lateral to the right eye. A small laceration is present on the dorsal surface of the right third finger. There was no fractures or internal hemorrhage, or trauma. The heart was slightly enlarged weighing 460 gm. Historically there is a mild myocyte hypertrophy but no evidence of inflammation or scarring. The upper airway showed mild edema of the arytenoid folds. Scattered fragments of food were present in the piriform sinuses and along the trachea and major bronchi. However, there was no evidence of airway obstruction. The mucosal lining of the upper airways showed brown discoloration similar to the gastric contents. Historically the lungs showed evidence of acute aspiration. The lungs also showed a florid follicular/bronchitis. Changes in chronic asthma was not seen. No other natural disease was identified. The postmortem alcohol determination was 140 mg/dl (0.14 on the intoxilyzer scale). An extensive toxicologic screen was negative except for a trace of caffeine. Hemoglobin electrophoresis showed no abnormal hemoglobin.

The medical examiners opinion was based solely on the temporal relationship with the decedent sprayed with pepper spray, the apparent respiratory compromise and rapid demise of the decedent. There was no physical injury to explain the decedent's death. The medical examiner should have further

assessed other reasons for the decedent's death. The medical examiner never considered positional asphyxiation which has been known to cause death in over weight subjects who have been put in a four point restraint due to resistance. The weight of the subject on the chest and the position of the body can make breathing very difficult and in some cases cause asphyxiation. Furthermore, the decedents death was not instantaneous allowing for time to obtain medical attention for the decedent before his demise.

A closer look at the reports reveal that pepper spray did not cause the death in this case. A tremendous chain of events took place causing the death of Angelo Robinson. The first event was when Angelo Robinson, an over weight male, struggled with police officers causing him to be tired and out of breath. Angelo Robinson was sprayed with pepper spray. The pepper spray may have contributed to a reaction, swelling of the mucus membranes, not allowing Angelo Robinson to breath deeply. Offering further resistance, Angelo Robinson had to be placed in a four point restraint to control him. Angelo Robinson was vomiting face down making it even more difficult to breath. Angelo Robinson complained about his inability to breath, at which time officers placed him in the back seat of the police car and left him unattended for approximately 11 minutes.

What did cause the death of Angelo Robinson? The pepper spray itself did not cause or directly contribute to his death. The major contributing factors were the failure of proper post

care attention after Angelo Robinson was sprayed with Oleoresin Capsicum and when he was put in a four point restraint. When Angelo Robinson complained of respiratory problems the officers should have taken proper steps in assisting him to breath easier, by lowering his legs and arms and allowing him to lay on his back. If the respiratory problems persisted they should have obtained the proper medical attention. Angelo Robinson's death was not instantaneous and was most likely avoidable.

When an in-custody death occurs regardless of the reason it creates a fear for the administrator, including investigation and civil litigation. Since numerous reasons exist for the violent behavior of encountered subjects that does necessitate the use of pepper spray on a subject, Officers should make every effort to protect subjects from the folly of their own actions. In every case where the officer knows of or should have known that a medical problem existed, proper medical attention should have been rendered.

VI. Review of Non-Lethal Case Law

The use of force by law enforcement officers has always been a matter of great concern in our democratic society. History records many instances of civil unrest and riots breaking out, when the general public considers the use of force to have been excessive or unnecessary. However, the role of the police officer is to maintain the laws of the government and to protect the civil rights of citizens. The use of force is sometimes an unavoidable necessity and is often a mandatory factor in controlling a violent person. The first question is how much force is appropriate and when does it become excessive. The answers to both questions lie within previous case laws that have been decided over past years. The case laws can only be used as a guide and not as the absolute rule.

One major question and concern is the duty of the officer to retreat and wait for back-up before spraying a person with pepper spray. The issue to retreating from resistance can be traced back to the 1918 case of Loveless v Hardy, and can be consistently found through each decade up to the 1976 Redding v Medina decision. The courts emphasized that an officer attempting to make a lawful arrest for a misdemeanor is under no obligation to retreat or retire to avoid the necessity of using extreme measures to prevent his receiving great bodily injury. Rather, the court continued, it is the duty of the officer to press forward for the accomplishment of his purpose.

In civil litigation the officers are frequently questioned on whether the force used was necessary at that given moment or could they have waited for sufficient back-up. History of past case law shows that the courts have continuously decided in the officer's favor, that the officer has no duty to retreat, based on the "reasonable man" principle.

In contrast, there may be situations when an officer is justified to press an arrest, but decides to retreat, due to their own discretion. The liability exposure here could be failure to act, if injury to another is sustained. Failure to act is a growing issue of the 20th Century. Officers must remember that when justified to make an arrest, but retreat in light to having to utilize a higher level of force than the officer is capable, there would be no liability. The reasonable man principle should always be applied.

The second issue is which type of force is acceptable as it pertains to the level of force used. Previous court decisions have been extremely vague at providing guide lines for non-lethal force. In the case of People v. Barite, the court stated that, "A officer making an arrest is not limited to that force which is necessary to over come the person arrested, but may also use such force as may be reasonably necessary to insure his own safety while making an arrest." This type of language has led to the "one plus one theory". This theory stipulates that whatever level of resistance an officer encounters, the officer has the right to escalate one level of force higher.

The duty to control a combative person is the third point to consider. Excessive force guidelines finally were established in the 1973 case of Johnson v. Glick. The Johnson v Glick decision stated that a claim to excessive force must be examined by four factors, which are:

- a. the need for the application of force.
- b. the relationship between the need and the amount of force used.
- c. what was the extent of injury.
- d. was the force applied in good faith.

While the Johnson v Glick decision was originally a result of a use of force incident in corrections, the similar decision in the 1981 case of Wise v. Bravo has been the guide for police actions. The court stated that the use of force is unconstitutional if:

- a. it causes severe injury.
- b. the injury was grossly disproportionate to the need for action under the circumstances.
- c. the action was inspired by malice rather than merely careless or unwise excess of zeal so that it amounted to an abuse of official power that shocks the conscience.

In 1989, the U.S. Supreme Court looked for the first time at the issue of non-lethal force. The court evaluated standards set previously for officers conduct in Johnson v. Glick and Gilmore V. City of Atlanta. In the 1989 case of Graham V. Connor, the

Supreme Court held that a central issue in physical force cases is the issue of whether the officer's actions are objectively reasonable in light of the facts and circumstances at time of the incident. Factors under the Fourth Amendment include whether the officers relied on good and reasonable police practice and the officers in this situation acted as other reasonable and prudent officers would act faced with a like or similar situation.

The Supreme Court makes reference to "good and reasonable police practice", and that actions should be compared to the reasonable and prudent actions of another. It appears that officers actions are going to be explored according to the current standard of training. The Supreme Court has also set fourth guide lines to determine excessive non-lethal force:

- a. was there a need for the application of force.
- b. the relationship between the need and the amount of force used.
- c. the extent of injury.
- d. whether the force was applied in good faith or maliciously or sadistically.

Oleoresin Capsicum as a Non-Lethal Force

What does it all mean? Is Oleoresin Capsicum a less than-lethal force option? The answers to the questions can be found in the past case law. The law enforcement administer will have to decide where to put the Oleoresin Capsicum spray on the use of force scale. A sound departmental policy and operating guide

line should establish the effect, purpose, procedure of the use of the pepper spray. A comprehensive training program should go beyond the technical application of the product. Medical and legal issues, along with product derivation taught to every one who carries and uses the product. This would meet the requirements of the courts as it makes reference to good and reasonable police practice.

The second issue is did the Oleoresin Capsicum cause any severe injury? Oleoresin Capsicum products are organically based and are generally immediate and temporary. Effects will usually completely dissipate within 45 minutes with no lasting after effects. There has not been a substantiated case of adverse reaction by any subject with respiratory illness or heart problems. Spraying Oleoresin Capsicum directly at the subject will neither cause permanent damage to an individual's eyes or respiratory system, nor will it cause any type of de-pigmentation of the skin. Thus, Oleoresin Capsicum does not cause any type of severe or permanent injury.

The third issue is, was the injury grossly disproportionate to the need for action under the circumstances? When officers have used hands on pain compliance techniques, balance displacement, joint locks, and stunning techniques, many severe and permanent injuries have been documented. This could stem from several reasons, lack of training and the officer's emotional state at the time of the confrontation. Again Oleoresin Capsicum has held up very well, because the officer

does not have resort to his or her own physical strength to control the situation. Reducing the injury rate to the suspects and officers themselves.

Furthermore, departments who have adopted the use of the Oleoresin Capsicum have seen a major reduction in the use of force complaints. The civil litigation has also been reduced. Various courts have upheld the use of traditional chemical irritants when properly employed. Any Oleoresin Capsicum related litigation, therefore, may be similarly resolved.

In contrast, when pepper spray is used as a convenience rather than a necessity, it may violate constitutional standards. The forth Amendment protects suspects from excessive use of force so that situations will not occur like the one officer who plead guilty to macing a crowd because he was being soaked with water pistols. It can also create liability concerns when innocent bystanders are sprayed and it is a significate officer safety issue when other police officers are sprayed in the middle of a violent confrontation.

VII. Conclusion

In the search for the non-lethal ways to subdue violent, emotionally unstable, or overdosed subjects on drugs, Oleoresin Capsicum aerosol spray has gained popularity over the last few years. Oleoresin Capsicum has proven to be the newest, most effective, and least dangerous non-lethal weapon on the market today.

Although there have been isolated cases of death in people who have been sprayed with pepper spray over the years, none of these deaths were ever medically linked with the pepper spray. The evidence always conclusively showed that the deaths were invariably from other causes.

Imagine what the outcome might have been if the Los Angeles police had sprayed Rodney King instead of hammering him with batons and prodding him with a stun gun. Or what might have happened if the Detroit police had sprayed Malice Green instead of pummeling him with heavy metal flashlights. While both men would have had a burning sensation of the skin, tearing, and swelling of the eyes with temporary blindness, a possibility of a difficulty in breathing, in all likelihood, they would have surrendered without enduring the kind of unnecessary beatings that landed their uniformed assailants in front of the courts. The officers who arrested them would still be on the beat, and the agencies would not have paid out millions of dollars in law suites. Public reaction to their arrest would have been

nonexistent.

The potential for a civil litigation against an agency is no longer a possibility, but a probability in today's society. With the courts awarding the plaintiffs's millions of dollars, the law enforcement administer can no longer sit back and hope that the officers will not encounter a volatile situation. It is becoming apparent that the only way to lower the potential liability is to carefully examine departmental policies and procedures and certify that both are sufficient to defend the agency against civil litigation.

The realization that Oleoresin Capsicum spray is yet another non-lethal force option for officers to utilize. The spray is not intended to replace weapons but serve, as the situation dictates, as an additional force option. Like all other defensive weapons, it does not work on everyone every time, nothing does! Oleoresin Capsicum shows approximately 93 percent effectiveness. This has proven to be the highest effective, operative percentage ever available to law enforcement.

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