

Defensive Sprays

Contributed by Sifu Trey Crake

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Defensive Sprays

There are so many defense sprays on the market today that it can be confusing for you to decide which one to get. There are three basic chemical compounds that compose these defensive sprays:

CS (Orthochlorobenzalmalonitrile)

CN (Alphachloroacetaphenone)

OC (Oleoresin Capsicum)

The first two CS and CN, irritate the membrane tissues and cause stinging and tearing. They can take from 5 to 30 seconds before they are effective and may not work if someone is drunk, on drugs, psychotic, or can't feel pain. The time delay and the fact that they may or may not be effective is enough to turn people away from the self defense sprays.

However, the remaining compound, OC, does not have these limitations.

OC, or Pepper Spray, is an inflammatory agent; not an irritant. When someone is sprayed with OC Pepper Spray the persons' eyes slam shut. Even if someone does manage to get their eyes open, they won't be able to see because OC dilates the capillaries and causes temporary blindness. Additionally, instant inflammation of the breathing tissues restricts all but life support breathing. They double over coughing uncontrollably.

Military personnel are subjected to similar chemicals in the course of their training to simulate a chemical attack in a wartime situation. After repeated exposure, a resistance is built up and the "gas chamber," as it is called, does not affect them as much. And it's true that some people are just not as affected as others are. Other law enforcement personnel, martial artists, and yes, even determined criminals, can fight through the effects of CS or CN chemical sprays.

Pepper Spray, on the other hand, has the effect of putting a brick wall in between the assailant and the sprayer. When someone gets a full blast of OC Pepper Spray, they stop what they are doing. They stop what they are thinking. Even people previously mentioned that could withstand the effects of tear gas are very personally affected by OC Pepper Spray. This includes people that are drunk, on drugs, or who are psychotic.

Once it became known that OC is superior to CN and CS, many brands became available with different concentrations, formulations, sizes, and spray patterns. Choosing the right spray is a critical decision if the spray ever has to be used in a self defense situation.

Pepper Spray, Tear Gas, Mace and The Law

Some states regulate or forbid tear gas, or some may allow cities to make their own assorted laws regarding tear gas. Many countries, including Canada, also forbid tear gas. For this reason, it's a good idea to call the law enforcement agency that has jurisdiction over your destination before you bring tear gas somewhere to find out about its tear gas laws. Misuse of tear gas in California comes with state penalties of up to a \$1000 fine and/or up to three years in prison, not to mention a possible felony conviction on record. Examples of misuse include using tear gas on people in anger, spraying it as a joke, or possession of tear gas by prohibited persons. Minors, drug addicts or persons convicted of felonies, assault or misuse of tear gas are legally prohibited from possessing tear gas, although there are few barriers to procurement of tear gas by these people. To be legally purchased, possessed or used in California, any canister must have a label that says "WARNING: The use of this substance or device for any purpose other than self-defense is a crime under the law. The contents are dangerous--use with care." The maximum legal net weight for a canister is 2.5 ounces, or 70 grams of OC, CS or CN. CR is not legal for civilian use. There are four major chemicals used as tear gasses. The first two are CS and CN, short for orthochlorobenzalmalonitrile and chloroacetophenone, respectively. They are the most common by far. A third, code named CR (dibenz(b,f)-1,4-oxazepin), has not come into civilian use. At standard temperature and pressure, these are actually white crystals with fairly low vapor pressures, not gasses, and they're not very soluble in water. In order to disperse them, they are suspended in a liquid carrier and aerosolized. You have probably heard of Mace, which is one of many brands of CN tear gas and is a well recognized trade name by both civilian and law enforcement tear gas users. The fourth is pepper spray, which is the oleoresin capsicum extracted from chili peppers. It's the chemical that gives them their hot quality. OC is a reddish-orange, oily liquid, insoluble in water. This agent is also dispersed by aerosol. Tear gas has been credited with saving lives when police are faced with barricade situations and combative suspects. Its use is a standard tactic which usually facilitates an arrest without the need for lethal force. It has also been used by the military in Vietnam, amid international controversy. Many considered its use in warfare to be a violation of the Geneva Protocols. One infamous use of tear gas occurred at Kent State University in Ohio in 1970. Although National Guard troops shooting students, killing four, was at the heart of the tragedy, the tear gas deployment on campus is well remembered. Pepper spray is generally regarded to be the most distressing to experience, but it must be sprayed in the eyes or inhaled directly to be effective. CS and CN, on the other hand, vaporize to some extent despite their low vapor pressures and may have some effect on a person who is hit less accurately due to the vapors being inhaled or drifting into the eyes. CS and CN may have some effect on a person sprayed in the groin area. Because of the different advantages of each, some formulations are being manufactured which contain blends of OC and either CS or CN. Also, despite the absence of vapors from oleoresin capsicum, aerosolized particles can remain airborne for a long time, especially indoors. Their concentrations can be high enough to irritate many people who were not even sprayed directly. One type of OC product attempts to eliminate aerosolized pepper spray entirely by propelling the agent in a thick foam.

While pepper spray is legal for use against bears in most states, the use of mace and tear gas is not.

The effects of exposure to tear gas can include tearing and involuntary closure of the eyes, with severe burning sensations on the nerve endings of the skin. Coughing, inflammation, mucous secretion, headache, dizziness, a tight feeling in the chest or excessive salivation may result. Pepper spray can cause a significant enough inflammatory response in the eyes to severely degrade the vision of even a PCP- intoxicated person who can't feel pain. If you are using tear gas defensively, target the face. A person properly sprayed with tear gas may experience panic, especially if you achieve an element of surprise. Pepper spray's effects may last up to 40 minutes after the agent has been completely irrigated from skin surfaces, with some minor irritation persisting up to a few hours after exposure. CS, CN and CR, on the other hand irritate when there is a sufficient concentration in contact with the skin and the 15-30 minutes of residual irritation degrades rapidly. CS is hydrolyzed in water, especially in basic solution; at pH 9, its half-life is about 1 minute. Your tear gas should come with a package insert that includes first aid instructions. If you accidentally spray yourself with tear gas, you will probably not be able to find these instructions, let alone read them--so read them before you need them. If you become exposed to any of these types of tear gasses, copious amounts of cool water should begin to provide relief and rinse away the tear gas contamination. Warm water may intensify the burning and inflammation, though. Fresh air helps, and washing twice with soap is recommended. Try not to rub! Don't use a soap that contains a lot of oils, and don't apply oily lotions--they will carry tear gas particles deeper into your skin and prolong your discomfort. Remove any contact lenses if you get tear gas into your eyes--but not with fingers that have additional tear gas contamination. Don't touch your face before washing your hands after contacting tear gas. Remove any contaminated clothing, as you may recontaminate yourself from them, and CN or CS- soaked clothing will continue to give off noxious vapors. Pain may be reduced by taking an over-the-counter anti-inflammatory drug, like ibuprofen. In addition, an over-the-counter antihistamine may alleviate some of the effects of pepper spray. Unfortunately, the time it takes for your body to deliver the drug in a pill to the sites of irritation make them of little use until the effects are already wearing off. They will be most effective if taken before exposure, like the antidotes to some chemical warfare agents, making them rarely useful. Infants are very sensitive to tear gas and should be taken to a doctor immediately if exposed to it. Tear gas as a weapon of self defense can be an excellent distraction, allowing the victim time to get away. However, unlike a firearm, it has little "stopping power," little ability to actually stop an attacker from causing you injury. Tear gas does not paralyze. A person sprayed with it may still grab you, hit you, stab you or shoot you. Also, tear gas may not affect the insane, addicts, intoxicated or hysterical persons.

A person threatening you with a lethal weapon can injure you mortally in less time than it takes you to draw and aim a tear gas weapon. An assailant may be able to take your canister away from you and use it against you. If this is happening, try to throw the spray away out of reach. Your spray could backfire at you in wind. Both wind and rain may reduce its range and effectiveness. CS, CN and CR tear gasses are usually not very effective against animals. In fact, law enforcement uses horses and dogs in areas they have deployed tear gas. OC has been proven effective against many animals, and has been available to the California public in an aerosol form for this purpose even before its use against humans became legalized. Most canisters sold for self-defense against humans, however, are marked "Not tested on animals." If you are attacked, use plenty of spray in the assailants face and run away immediately Tell law enforcement about the incident right away. Remember a description of the assailant and the location of the incident and tell them to law enforcement in order to make an arrest possible. The best safety measure is to avoid unnecessary risks whenever possible. Have a security plan: Make a habit of walking with others and stick to paths with good lighting, in public view whenever possible. Avoid areas known to be dangerous--never go with tear gas where you wouldn't go without. Although the Materials Safety Data Sheet for OC does not list any known specific lethal dose or lethal concentration, pepper spray has been implicated in the deaths of some people who were sprayed with it. These people suffered anaphylaxis, a violent allergic reaction that can be life threatening. Symptoms can include airways obstructed by swelling, fainting, and shock. Asthmatics are at higher risk of having an adverse reaction to pepper spray. Another bizarre risk factor that was recently reported is a history of violent behavior and confrontations with law enforcement; this statistic may be an artifact of these people having a higher probability of exposure in the first place, or having a higher probability to multiple exposures which might cause allergic sensitization in some individuals. For the reason of additional risk to asthmatics, such people who wish to carry tear gas for self defense but worry about possible wind-blowback may wish to consider a formulation which does not contain oleoresin capsicum, or at least a foam type pepper spray which reduces the risk from airborne particles of the OC agent. This risk of a bad reaction, however, is not going to be reduced for the user of a foam in a situation where an assailant takes the weapon away and uses it against the victim. Also, the possibility of this reaction emphasizes the importance of using pepper spray only in defense of people, not property. It also adds potential liability in these litigious times.

Canisters may have a shelf life of three to six years. They are usually conservatively dated to expire in one year. Shake the canister about once a month to keep the ingredients mixed. Canisters have the active ingredient mixed in a liquid, and a pressurized gas propellant. The inside of a tear gas canister is like a squirt bottle under pressure. An intake straw dips to the bottom of the canister, into the liquid mixture. For this reason, the canister must remain fairly upright. If it's held upside down while spraying, only the propellant may escape. If the canister is sprayed upside down, it will loose pressure and may not be able to spray when you need it, even though you may be able to hear and feel the liquid sloshing around and you believe the can is full. Other canister failures are possible. The nozzle may become clogged with lint or dirt. The trigger may break off. If left in a car on a hot day, a canister may be exposed to temperatures over 140 degrees F. Even if the it doesn't explode (which it might), this adverse condition may cause a leak or a loss of the pressure needed to fire the device. It could also shorten the life of the active ingredients. If you wish to test your canister for pressure, make your spray burst only a fraction of a second and don't do this often, as there may be as little as four seconds or less worth of spray in some models. The label or instructions of a good brand should tell you how many seconds of spray it has. Although floating the device in water to determine the quantity of ingredients left has been

recommended in the past, be aware that this may cause the label to fall off or dissolve, and the device will no longer comply with the law unlabelled. Keep it away from children! You are responsible for the use of your canister. It is vital that you give some thought in advance to how you will carry your tear gas canister. A purse can be a poor location, as it is likely to end up at the bottom and you will have to dig for it in an emergency. A purse with an accessible, open pocket where the spray can't get lost may be better than keeping it loose in the bag, but the first indication that you need your spray may be when an assailant is already tugging on your purse. Consider carrying the device in the same place whenever possible. That way, you won't have to think, "where is it today?" in the heat of the moment. Try various carrying methods and practice drawing the weapon. Make sure you can draw it quickly from wherever you're keeping it. Good, accessible locations include inside a pants pocket, especially for the models with a clip. If it's clipped onto the outside of a pocket or belt, it may be dislodged accidentally or grabbed by an attacker. At the very least, it may be noticed before you use it, removing the element of surprise which adds to the effectiveness of tear gas. Most clip models have the clip on the left side of the canister, which leaves the majority of the canister concealed if it's kept in the left pocket with the clip out. If you are comfortable drawing the weapon with your left hand, this is a good configuration. If this type of canister were kept in the right pocket, it would be backwards when it is pulled out. Another good location may be a loose outer pocket of a jacket. Belt holsters are available for some models. Although these are visible, the canister may be less recognizable to an attacker in a holster than it would be bare. The importance of accessibility can not be overstressed. How much warning might you have in a typical assault? How long does it take you to draw your weapon? Does the way you carry your canister allow you to draw it in time to hinder an assault? Keep in mind that most canisters are effective up to about a ten foot range. You should have your tear gas with you whenever possible. Hopefully, you will never need it. But if you do, you are unlikely to know when until the very moment you need to grab for it. Always remember that you assume all risk and liability for owning and using tear gas, including pepper spray. Even if you use it correctly, there is no guarantee that it will always be effective at hindering an attack, and there is always the possibility that it may be used against you instead. I hope this document has given you a better understanding of tear gas as a weapon for self defense. Please be careful and safe!