

# What you need to know about Pepper Spray

Pepper Spray is a derivative of hot cayenne peppers and is an extremely effective personal self defense product. It is not an irritant like tear gas, but a strong inflammatory agent. Because pepper spray is an inflammatory agent, it is effective on those who feel no pain such as psychotics and those under the influence of drugs or alcohol. All mucous membranes (eyes, nose, throat and lungs) react immediately upon contact with pepper spray resulting in temporary blindness and instant inflammation of the breathing tube tissues. However, pepper spray will not cause any lasting aftereffects.



The key ingredient is Oleoresin Capsicum and is often referred to as “OC”. OC is a general horticultural term that refers to chili peppers, ranging from relatively mild jalapenos to the scorching hot habanero pepper. They all contain Oleoresin Capsicum in varying degrees and this powerful alkaloid is the basis for all pepper sprays. Pure Oleoresin Capsicum is so potent that humans can detect it in percentages as low as .0001%.

The “Scoville Unit” is used to calculate the temperature of peppers and can range from 1000 for mild bell peppers to over 500,000 for exotic habaneros. Pure Oleoresin Capsicum can go into the millions! There are laws that dictate how pepper spray ingredients must be processed and refined. When considering which pepper spray is most effective, one must consider the percentage of pepper being used and the heat rating of that pepper (measured in Scoville Heat Units or S.H.U.). All of PepperEyes.com pepper sprays are two million S.H.U., which is the highest available. At 17% and two million S.H.U., our Street Wise pepper spray is the hottest, most powerful in the world. The potency of this spray enables it to bring down even the most aggressive assailants. We offer a wide range of sizes for both civilians and police. However, the concentration of Oleoresin Capsicum is not as important as the effective heat provided by a particular pepper spray formula. The higher the concentration, the thicker the liquid becomes and this can slow down absorption into the skin. So there is definitely a science in developing the optimal pepper spray formula. We have tested our formulas against dozens of other brands and can honestly say that these are the most effective pepper sprays available.

## How to choose the right defense spray

Do you plan to carry the pepper spray on your person? If so, consideration should be taken regarding the size of the unit you choose. Keychain pepper sprays are easily carried and accessible since you can have your keys in your hand to and from your vehicle or residence. If you are planning on carrying a unit while you exercise (such as walking, jogging, bicycling) you might want to consider a pepper spray with a belt clip. These are easily accessible if surprised by an attacker while you are out and about. For home or auto use, there are several larger pepper spray models that contain more chemical and can be available to you whether you are on a long road trip or your vehicle breaks down. If you would rather carry pepper spray in a covert canister, the pepper pen or pepper pager are perfect disguises for hiding the defense spray in plain sight.

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## How to use your pepper spray

First of all, your pepper spray will not be effective unless you are aware of your surroundings and attacker. It's important to pay attention to what is going on around you and always keep your pepper spray close by. Be aware of the criminal who is looking for an easy target or is acting suspicious.

When approached by an attacker, place the pepper spray in your dominant hand. Keep your non-shooting hand stretched out in front of you to keep distance from the attacker. Aim and spray towards the attacker's face while moving backwards away from them. At the same time yell 'HELP' or 'RAPE' or 'FIRE' as loud as you can so that attention is immediately diverted to your situation. Continue spraying or be ready to spray until the attacker has stopped advancing. Then at the first chance get away from there as fast as you can. Contact the police immediately!

## What is Pepper Spray?

Pepper Spray is an aerosol spray used for self-defense. Pepper Spray is a defense spray that consists of a concentrated agent injected into a canister and dispersed, or sprayed, by aerosol. The concentrated agent is Oleoresin Capsicum. Oleoresin Capsicum is extracted from chili peppers and is the chemical that gives peppers their hot quality. That is why it is called pepper spray. Also, Oleoresin Capsicum is known as "OC" for short. That is why pepper spray is commonly referred to as OC pepper spray. Just as many people mistakenly refer to tissue paper as "Kleenex" or refer to a photocopy as a "Xerox," many people refer to defense sprays as "Mace." Mace is a brand name that carries a registered trademark owned by Mace Security International (MSI). MSI originally marketed a particular tear gas self defense spray. Today, Mace brand defense sprays either contain OC pepper, tear gas or both.

## How is Pepper Spray Made?

Pepper spray is derived from hot peppers. The oils are extracted from the hot peppers using a high-pressure process. This process leaves you with the active ingredient in pepper spray known as Oleoresin Capsicum, or "OC." OC is a reddish-orange, oily liquid, insoluble in water. The pure pepper extract is then diluted with an inert ingredient that reduces the "hotness" of the extract to get it down to a useable level for pepper spray.

## What is Tear Gas?

There are three major chemicals used as tear gases:

1. CS
2. CN
3. CR

The first two are CS and CN, short for orthochlorobenzalmalononitrile and chloroacetophenone, respectively. A third, code named CR (dibenz(b,f)-1,4-oxazepin), has not come into civilian use. Both CS and CN tear gas are synthesized chemicals known as lachrymators. A lachrymator is a substance that produces profuse tearing. At standard temperature and pressure, these chemicals are actually white crystals with fairly low vapor pressures, not gasses, and they are not very soluble in water. In order to disperse them, they are suspended in a liquid carrier and aerosolized.

## Pepper Spray vs. Tear Gas

Pepper spray is not tear gas and tear gas is not pepper spray. But both can be used as a defense spray. Two important differences between pepper spray and tear gas are:

1. Tear gas is an irritant and therefore its effectiveness relies mainly on pain compliance. Pepper spray is an inflammatory agent. The response to contact with pepper spray is involuntary which makes pepper spray a very effective weapon against drug or alcohol impaired assailants or animals that may not respond to pain.
2. Tear gas has a high level of toxicity and OC pepper spray is totally non-toxic.

# What you need to know about Pepper Spray

As Doug Lamb writes in “Tactical Use of Defense Sprays” - When a person is sprayed with OC pepper spray, two things happen instantly. First, the person’s eyes clamp shut hard. Not only that, but if that person does manage to force his eyes open, the person still cannot see because the OC dilates the capillaries and causes temporary blindness. Second, an immediate fit of uncontrollable coughing doubles the person over because the OC causes instant inflammation of the breathing tissues, restricting all but life support breathing. An assailant who is sprayed with OC stops what he is doing and stops what he is thinking. This is true even for those who are drunk, on drugs, or psychotic.

We Highly Recommend the Booklet “Tactical Use of Defense Sprays.” This 32-page booklet is available in our Pepper Spray section. It teaches choosing a defense spray, how to carry it, how to shoot it, what to do about multiple assailants, date rape protection, using defense sprays against guns and knives, home tactical use and much, much more about the realities of protecting yourself with defense sprays. Written by nationally recognized self-defense expert Doug Lamb.

## Are All Pepper Sprays the Same?

No, all pepper sprays are not the same. Pepper sprays are rated in two ways: Percentage of Oleoresin Capsicum in the agent itself, and the “hotness” of the spray, which is measured in Scoville Heat Units (SHU’s). The percentage of OC has nothing to do with the SHU rating, and vice versa. One of the biggest misconceptions about pepper spray is that the higher the OC percentage, the hotter and more effective the spray. In most cases, this is not true. The best and fastest incapacitating pepper sprays in the world can be from 2% to 10% OC. The lighter the fluid, the faster it penetrates the membranes. So even though the percentage of OC is important, the SHU rating should be taken into account the most. A pepper spray with 2,000,000 SHU’s is twice as hot as a pepper spray with 1,000,000 SHU’s. By the way, 2,000,000 SHU’s is a substantial rating for an effective pepper spray.

## The Physical Effects of Pepper Spray



Pepper Spray has four physiological effects that may be experienced:

Eyes - tearing, involuntary closing or complete closing due to dilation of the eye capillaries. Eyes will appear red/bloodshot for 30 to 60 minutes. People wearing eyeglasses or contact lenses will be equally affected.

Respiratory System - immediate inflammation, including swelling of the throat lining which can restrict the airway size. Respiratory functions return to normal within 10 to 45 minutes. The airway will be open enough to allow for sufficient oxygen flow for survival. Due to the reduced airway flow, the person will probably not receive enough oxygen to continue fighting or other sustained physical exertion. Temporary paralysis of the larynx. Uncontrollable coughing, retching, and gasping for air with a gagging sensation in the throat.

Effect on the skin - inflammation of the exposed skin with a burning sensation.

Effects on muscle coordination - pepper spray exposure may cause a person to lose balance due to the effect of pepper spray on vision.

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## How Can I Be Assured My Pepper Spray Will Work When I Need It?

You should get in the habit of testing your defense spray every 90 days. To do this first go outside and determine which direction the wind is blowing. Remember to always stand upwind from the direction you are spraying. Depress the firing mechanism for ½ second. This test should be performed upon purchase and every 90 days after that. Be aware that every time you test your spray you reduce the contents of the canister. If you are using a key chain model and you test regularly you will need to replace the unit every 9 to 12 months if you follow the recommended testing procedure above.

## Is pepper spray legal?

In most states pepper spray is legal to possess and carry. You should check with your local law enforcement office or your states Attorney Generals office for any regulations your state may have. There are states where pepper spray is legal but there may be size, age or OC concentration restrictions. You should check on these restrictions as well.

## Is there anyplace where I cannot carry my pepper spray?

Yes. You cannot carry pepper spray on board commercial aircraft. This is a Federal crime that can carry up to a \$25,000 dollar fine. It is ok to carry pepper spray in your checked baggage although it is highly advisable that you notify the ticketing agent when you check your baggage. Also since 9/11/01 you may have issues when carrying pepper spray into secured locations such as a Federal buildings, State buildings or anyplace where you pass through a security checkpoint. Although there are no laws that we are aware of you should use your common sense here.

## How Long Will My Pepper Spray Last?

Most pepper sprays have an expiration date stamped on the canister, usually 2 to 4 years from the time of manufacture. Although the spray life is indefinite it does start to lose potency over time. Any use of the spray beyond the expiration date is highly inadvisable. We strongly advise you to replace your pepper spray long before the expiration date! That way you are always assured of the potency of the spray. Take your old one to a safe place and target practice with it. Become familiar with how far it will spray, how to unlock it, etc. When practicing with your defensive spray, be aware of air movements and wind patterns and be very careful not to contaminate yourself.

## The History of Pepper Spray

Oleoresin capsicum spray was developed at the University of Georgia by Professor James H. Jenkins and Dr. Frank Hayes, D.V.M., in 1960. That formula under the brand name Halt Animal Repellent was first sold in 1963. Like tear gas, oleoresin capsicum (OC) is non-lethal and induces temporary incapacitation with no known long-term effects. In 1989 the Firearms Training Unit (FTU) of the FBI Academy in Quantico, Virginia, completed three years of intensive research on OC, following which the FBI authorized the use of OC for its special agents and SWAT teams. In addition, OC has proven effective against domestic and wild animals without endangering the animals or the environment. OC, in proper dispensing systems, has been successfully used to stop grizzly bear attacks in Alaska and pit bull dog attacks in California and Texas. The US Postal Service also issues OC to its letter carriers and animal control facilities also issue animal repellent to its officers to protect them from dog bites.