

PepperBall®:

The **Most Reasonable** and **Effective** Non-Lethal Option



The need for non-lethal means to manage crowds and offer alternatives in day-to-day policing situations has never been greater. A non-lethal option reduces risk while enhancing the capability of police and corrections officers to limit or control escalation, to repel or temporarily incapacitate threats, and to keep themselves and the public safe while performing their duties. These strategies are best achieved with tools and tactics that have built in **flexibility** and allow officers to maintain **distance** from crowds and individual assailants.

This paper details how the PepperBall® system provides law enforcement and corrections agencies with a flexible and superior way to manage crowds or individual assailants from a safe distance with a reasonable non-lethal level of force.

LESS-LETHAL VS. NON-LETHAL

Less-lethal force encompasses the entire use of force spectrum up to, but excluding, deadly force. Commonly deployed less-lethal force options include:

- The **12 gauge drag-stabilized round** and the **37/40 mm foam round** are the less-lethal munitions most commonly used by U.S. law enforcement agencies for unruly crowds and riot control. These munitions on average travel approximately 300 feet per second and hit the human body at an average force of 100-120 foot-pounds. These less-lethal munitions, even when deployed according to manufacturers' guidelines, have the ability to cause a significant injury or even death.
- **Electronic control devices** (used widely in day-to-day policing across the U.S.) are used to jolt an individual with as much as 50,000 volts of electricity to temporarily immobilize them. Over 1,000 deaths have occurred following the use of electronic control devices since the early 2000s. In 9 of every 10 incidents, the deceased was unarmed. The patrol or SWAT officer must be within 20 feet of the suspect when deploying the device in order to be effective, putting the officer within reach of the assailant.
- **Pyrotechnic hand-thrown chemical agent munitions** are used in crowd control and also used in day-to-day policing to flush out individuals or groups of suspects. They are available with a variety of specifications to produce an air burst or flash distraction, or dispersal of small round projectiles, an oleoresin capsicum (OC) irritant, or a CS or CN gas. Depending on the toxicity of the chemicals dispersed, the area may need to be evacuated for as long as 24 hours. Also, use of pyrotechnic devices increases the risk of an unintentional structure fire or ignition of an individual's clothing.

In contrast, PepperBall® is a **non-lethal** solution.



THE INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE (IACP) DEFINES LESS-LETHAL FORCE AS

“any use of force other than that which is considered deadly force that involves physical effort to control, restrain, or overcome the resistance of another.”

(IACP. National Consensus Policy and Discussion Paper on the Use of Force. IACP, July 2020)

PEPPERBALL® IS UNPARALLELED AS A NON-LETHAL OPTION FOR DAY-TO-DAY POLICING AND CROWD MANAGEMENT.

PepperBall® is a **non-lethal** disabling-irritant delivery system that uses **high-pressure air** or CO2 to deliver **proprietary PAVA powder projectiles** from a safe distance. The PepperBall projectiles are designed to break and release the temporarily incapacitating compound in a powder cloud. The kinetic impact of PepperBall is one-tenth that of 12 gauge drag-stabilized or 37/40 mm foam less-lethal munitions.

PEPPERBALL ADDS A SAFE, NON-FIREARM OPTION TO AGENCIES' ARSENAL.

PepperBall is not a firearm. PepperBall combines proprietary PAVA-based irritant exposure with the capability to also deliver a moderate kinetic impact. In contrast to less-lethal 12 gauge and 37/40 mm munitions, the PepperBall round weighs only 3.0-3.4 grams and hits the body at 10-12 foot-pounds, similar to the kinetics of a recreational paintball marker. This greatly reduces the possibility of serious injury by a direct impact.

PEPPERBALL MINIMIZES AGENCIES' RISK AND LIABILITY EXPOSURE.

Millions of PepperBall projectiles have been deployed by law enforcement agencies since 1998. Over the past 23 years, PepperBall has been listed as a contributing factor in only one critical incident. Law enforcement agencies can reduce risk, injuries and liability by using non-lethal instead of less-lethal solutions.



NATO DEFINITION OF NON-LETHAL WEAPONS:

"Non-Lethal Weapons are weapons that are explicitly designed and developed to incapacitate or repel personnel, with a low probability of fatality or permanent injury, or to disable equipment, with minimal undesired damage or impact on the environment."

"Non-Lethal Weapons shall not be required to have zero probability of causing fatalities or permanent injuries. However, while complete avoidance of these effects is not guaranteed or expected, Non-Lethal Weapons should significantly reduce such effects when compared with the employment of conventional lethal weapons under the same circumstances."

(NATO Press Statement, Oct. 13, 1999)



PEPPERBALL® IS DESIGNED TO BE USED SOONER AND SAFER THAN OTHER FORCE OPTIONS.

When officers have only a fraction of a second to make a difficult decision, PepperBall® makes the decision easier. With exceptional range and accuracy, the PepperBall system can be used sooner and more effectively than any other tool. That means officers can stay safe and get the job done without immediately moving to lethal force and its tragic consequences.

PEPPERBALL PROVIDES ONE OF THE LOWEST LEVELS OF FORCE THAT CAN MANAGE CROWDS OR INDIVIDUALS.

The PepperBall system provides police and corrections agencies with a non-lethal means to effectively control crowds and individual assailants. PepperBall enhances the capability of officers to

limit or control escalation, to repel or temporarily incapacitate threats, and to keep themselves safe while performing their duties.

PEPPERBALL HAS BEEN WIDELY ADOPTED BY LOCAL, STATE, AND FEDERAL LAW ENFORCEMENT AGENCIES:

- Since coming to market in 1998, PepperBall has been deployed by more than 10,000 state, county, municipal, and federal law enforcement agencies across the globe. While its origins were in crowd management, PepperBall is being adopted by many agencies as a critical tool that helps reduce lethality in day-to-day policing.
- PepperBall is currently used by eight of the 10 largest law enforcement agencies in the United States, including NYPD, Chicago PD, Los Angeles PD, Los Angeles County Sheriff, Cook County Sheriff, Houston PD, New York State Police, and Pennsylvania State Police.
- PepperBall is deployed by agencies large and small. With its multi-use functionality and train-the-trainer training, PepperBall is affordable for agencies of all sizes.

"We have used PepperBall products for many years with great success in gaining inmate compliance with fewer injuries and less use of higher force options. We are very happy with the results."

— Idaho County Jail Supervisor

FLEXIBILITY IS ONE OF THE PEPPERBALL® SYSTEM'S GREATEST ASSETS.

The non-lethal PepperBall® system delivers superior performance across numerous scenarios, settings, and conditions, allowing officers to manage critical incidents while maintaining a safe distance.

In comparison, most less-lethal weapons are limited to one function (e.g., firing 12-gauge rounds), or used on one person (e.g., electronic control device), or in a specific manner (e.g., within 15 feet of the assailant).

PEPPERBALL HAS BUILT-IN FLEXIBILITY FOR A WIDE RANGE OF USES AND DISTANCES.

PepperBall allows officers to use the same technology for area control and for near-in threats that officers cannot effectively approach (e.g., an assailant wielding a knife). Without this flexibility, a switch to a different technology would be required.

Switching technologies midstream can result in substantial time delays, riskier tactics, or lethal force being deployed against suspects—all of which can be avoided with PepperBall.

THE PEPPERBALL PAVA FORMULA IS EFFECTIVE ON MULTIPLE INDIVIDUALS OR WHEN A SUSPECT IS HIDDEN AND NOT IN VIEW.

The irritant cloud created by the PepperBall projectile burst (generally a 12-foot diameter cloud) is sufficient to impact individuals hidden from view, groups who are hiding out of sight, and multiple individuals simultaneously in the case of crowd management.



Police officers in Colerain Township, Ohio, subdued a man who lunged at them several times with a tomahawk in one hand and a bayonet in the other, by shooting him with PepperBall.

"To watch how quickly that situation evolved and how dangerous it was for them, to react the way that they did makes you very proud as a chief — that you hired the right people and trained them the correct way and you can trust them to be in the community and do the right thing," said Colerain Police Chief Mark Denney. "There are several points they would have been justified in using deadly force, but they were willing to forgo that and use some of their other options that they had," Denney said.

— Reported by FOX19 News, October 5, 2017

PEPPERBALL® PROVIDES THE ABILITY TO ESCALATE OR DE-ESCALATE FORCE AS APPROPRIATE.

Most situations do not require force but when they do, with PepperBall®, officers can respond with the lowest level of force and be effective, while still being prepared if the situation escalates. The responding officer controls where the projectiles are aimed, how many projectiles are launched, and how rapidly they are deployed, which allows the response to be tailored in the moment.

MULTIPLE PROJECTILES THAT CAN BE USED IN MULTIPLE PLATFORMS MEET DIVERSE MISSION REQUIREMENTS.

The PepperBall system offers over a dozen types of projectiles and high-capacity launchers. Launchers are designed for minimum time between launches and quick reload speed, so even in a tactical or Mobile Field Force situation, the PepperBall system offers flexibility, safety and security, all within one platform.



FLEXIBLE, SAFE, NON-LETHAL OPTIONS ARE NEEDED ACROSS A WIDE RANGE OF LAW ENFORCEMENT SITUATIONS FOR BOTH CROWD MANAGEMENT, DAY-TO-DAY POLICING, AND CORRECTIONS.

Crowd management scenarios that benefit from non-lethal force options include:

- Managing malicious individuals or sub-groups within otherwise peaceful gatherings
- Achieving buffer zones between groups
- Clearing areas and dispersing unruly crowds

Day-to-day law enforcement and correctional scenarios that benefit from non-lethal force options include:

- Controlling suspect/inmate who refuses to comply with lawful instructions from an officer
- Controlling an armed, violent, or mentally unstable individual, while still maintaining a safe distance
- Removing barricaded or hidden suspects, with no risk of creating a fire hazard
- Repelling the advancement of aggressive animals

PEPPERBALL® CREATES DISTANCE, SAVES LIVES.

No other widely deployed technology offers both the ability to create distance and control areas while also protecting officers from individual assailants.

PEPPERBALL CREATES DISTANCE BETWEEN OFFICERS AND CROWDS OR ASSAILANTS.

Creating distance is an extremely important tactic for safely controlling crowds. Once officers make physical contact with assailants or protestors, injuries to the officer and citizen are much more likely to occur. Deploying PepperBall® as the first option can greatly reduce the risk of serious injuries to officers and citizens.

UNLIKE OTHER OPTIONS, PEPPERBALL ALLOWS OFFICERS TO:

- 1. Create distance by deploying projectiles onto a surface** for area saturation from up to 150 feet away, for example, onto a roadway in front of a non-compliant crowd. The cloud created by the bursting projectiles serves to irritate and clear crowds from an area.
- 2. Control behavior without physically engaging with crowds.** The PepperBall system is used by agencies focused on improving their ability to manage and control challenging crowd situations while minimizing the risk of death or serious injury to protestors, assailants, and law enforcement officers.
- 3. Keep officers at a safe distance.** With PepperBall, officers can effectively control an individual assailant without putting themselves within reach of the suspect. In comparison, to deploy an electronic control device or chemical spray an officer must be within 7-20 feet of the suspect.



"This call presented danger to the immediate community around this residence, the officers, firefighters and the person in crisis," said St. Paul Police spokesman Sgt. Mike Ernster. "The PepperBall was used as we intended it and it brought this situation to a swift conclusion with the least amount of force necessary."

— Reported by the Pioneer Press on February 12, 2019, describing how a St. Paul officer used PepperBall to get a woman into custody after she threatened to blow up a building, harm herself, and came at police officers

HOW THE WORLD'S SAFEST, MOST RELIABLE, MOST EFFECTIVE NON-LETHAL SOLUTION IS CREATED.

PepperBall® doesn't just say it's the best, it has the facts and scientific data to prove it.

PEPPERBALL® PRODUCTS ARE DESIGNED AND MANUFACTURED IN THE U.S. FOR OPTIMAL QUALITY CONTROL.

The PepperBall system is designed, manufactured, and marketed by United Tactical Systems (UTS) of Lake Forest, Illinois. All projectiles are manufactured in the U.S. Launchers are assembled in the U.S. and overseas.

UTS PRODUCTION FACILITY MANUFACTURES ALL PROJECTILE MATERIALS IN-HOUSE TO EXACTING STANDARDS.

UTS has full control of the product creation process from concept through manufacturing. UTS engineers designed and built the proprietary PepperBall projectile manufacturing equipment and process to ensure accuracy and best in class burst and cloud characteristics.

PepperBall shells are injection-molded with specialized patented equipment. Shells are filled with proprietary formulas that are all mixed in-house and are ultrasonically welded together so that each PepperBall projectile will break and perform consistently and precisely as designed.

THERE IS FULL TRACEABILITY OF EVERY PEPPERBALL INGREDIENT, COMPONENT, AND PROJECTILE.

United Tactical Systems' extensive quality control and safety program includes full traceability of every single ingredient, component, and every PepperBall projectile. All projectile shells are date coded and tracked through the entire production process. UTS knows which machines and raw ingredients were used on every single PepperBall projectile produced. This full traceability is typical of food processing but unheard of for projectile manufacturing.



"PepperBall saved us during the riots that came into our city following the death of George Floyd. The deployment of PepperBall to create an irritating PAVA cloud kept crowds at a distance and our officers safe."

—St. Paul Police Department Officer

THE PEPPERBALL® PAVA IS PHARMACEUTICAL GRADE AND NON-FLAMMABLE.

PAVA is based on one of the hottest of the six capsaicinoids found in pepper plants. PepperBall® products contain only safe, pure, non-oil based PAVA and are non-flammable. Ingredient consistency ensures each projectile operates with quality and effectiveness.

THE FINAL QUALITY CONTROL STEP IS DESTRUCTIVE TESTING.

One percent of all PepperBall projectile products is sample tested. In other words, 1% of product is destroyed in the quality control testing program. No product leaves the UTS manufacturing facility unless it is proven to perform as specified.



PEPPERBALL PROJECTILES OUTPERFORM COMPETITORS ON CRITICAL PERFORMANCE CHARACTERISTICS.

Internal testing shows that PepperBall projectiles outperform competitors on all dimensions, including:

- **Burst characteristics:** Projectiles burst as designed regardless of temperature or the type of surface impacted (e.g., clothing, pavement, or an individual's skin). Plus, PepperBall projectiles require up to 75% less impact energy to break and release the irritant.
- **Cloud characteristics:** The PepperBall cloud is differentiated by the ability to keep the active ingredient suspended in the air, which creates a larger area of effect. The greater amount of PAVA that stays airborne along with the use of high grade PAVA, results in greater strength of irritation.
- **Range and flexibility:** PepperBall offers a wide scope of projectiles for a variety of uses. With ranges of up to 150 feet with the long-range VXR projectile, the reliability of size, weight, and burst behavior means consistent performance, every time.

MISSION-DRIVEN INNOVATION, RESEARCH AND DEVELOPMENT IS CONTINUOUS.

The UTS team of engineers, designers, scientists, and craftsmen have spent decades developing the precision PepperBall launchers, proprietary powder formulas, shells, and automation manufacturing equipment. This work continues unabated today to ensure that officers can control crowds, disable assailants, and accomplish their missions while minimizing the risk of death or serious injury to the public and law enforcement officers.

"PepperBall is our preferred non-lethal choice in the field. It's always the first one we use."

—U.S. Customs and Border Protection Officer

PEPPERBALL® PROJECTILES ARE ENVIRONMENTALLY SAFE.

PepperBall® powder formulas are food grade and biodegradable. The plastic shells are chemically inert and pose no environmental risk. The PepperBall ingredients are non-flammable and easy to clean up with water and a wash-down solution, unlike harsher chemical agents such as CS or CN gas that render areas uninhabitable for hours or even days. PepperBall projectiles can be deployed at virtually any temperature.

THE COST OF OPERATING PEPPERBALL COMPARES FAVORABLY TO LESS-LETHAL WEAPONS.

PepperBall launchers are comparable in cost to duty pistols, but typically less than half the cost of electronic control devices. Unlike lethal and less-lethal weapons, the PepperBall system is a multi-dimensional tool that can be used in many situations, so departments gain greater value with a PepperBall investment.



The PepperBall training is second to none and courses have been completed by thousands of officers. In addition, the annual certification cost for PepperBall costs 75% less compared to annual certification for less-lethal options.

THE PEPPERBALL® SYSTEM COMPONENTS

The PepperBall® system include four components: pneumatic launchers, air supply or propellants, projectiles, and training. Each component is reviewed in this section.

1

LAUNCHERS

2

AIR SUPPLY

3

PROJECTILES

4

TRAINING

1

The **launcher** is the hardware device which holds and launches the PepperBall projectile. Launchers range from a compact lightweight hand-held style that fits on a standard duty belt to a longer-barreled shoulder-mounted launcher with greater range and projectile capacity. Each launcher is air powered, with either carbon dioxide (CO₂), nitrogen, or compressed air powering the launch of projectiles. **PepperBall launchers are not classified as firearms.**



2

Access to appropriate **air supply** is an important consideration when using PepperBall launchers, and there are numerous air supply alternatives available. Typically, High Pressure Air (HPA), CO₂, or Nitrogen (for cold weather use) is used, with pre-filled cartridges available for many launchers. Other launchers require an air supply, often in the form of a SCUBA tank, to fill/pressurize the launchers.



The patented PepperBall® **projectile**, a hard plastic frangible (breakable) sphere visually resembling a paintball, is designed to burst upon impact. The gold standard in the industry, PepperBall projectiles are more accurate, more consistent and disperse a larger cloud than competitive offerings. Over a dozen types of projectiles are available with multiple payload options and a proprietary controlling agent. The primary variants are:



- **Active projectiles** filled with a fine PAVA powder or other irritant are designed to disperse into a cloud upon impact to incapacitate an attacker. These projectiles come at different concentrations of PAVA, allowing law enforcement to select more concentrated and irritating formulas versus less so. The PepperBall PAVA cloud allows officers to use the lowest level of force possible by simply breaking projectiles near a subject or crowd.
- **Inert projectiles** filled with a non-toxic powder which does not cause irritation and is designed for use in training. They can also be used for direct impact in situations (e.g., hospital or school) where PAVA cannot be deployed.
- **Glass breaking projectiles** are solid projectiles designed to break glass in certain law enforcement scenarios.
- **Marking projectiles** create a visible or UV mark on an assailant, allowing law enforcement to later determine who was impacted by the projectile, which is helpful in situations involving multiple parties where law enforcement desires to “tag” a suspect for later identification.
- **Long-range VXR projectiles** are also available for use on subjects at distances up to 150 feet.

Comprehensive training prepares officers for proper and effective PepperBall® deployment.

The PepperBall system also includes a comprehensive training program led by Master Instructors with decades of in-field experience in law enforcement and corrections. These Train the Trainer courses are designed to make sure all participants are confident in their ability to educate downline users in how to deploy their PepperBall system at the right time and distance.



PEPPERBALL® IS THE PROVEN NON-LETHAL SOLUTION.

PepperBall® stands alone as the non-lethal use of force option for law enforcement agencies seeking to enhance the capability of police and corrections officers to safely limit or control escalation and to repel or temporarily incapacitate threats. No other widely deployed technology offers both the flexibility to create distance and control areas while also protecting officers from individual assailants.

For over two decades, PepperBall has equipped law enforcement agencies around the globe with a reliable, powerful, safe, non-lethal solution to help officers perform their duties while reducing injuries and risk and keeping themselves and the public safe.



"We have a 90% plus success rate when we deploy PepperBall in the field."

— Tulsa Police Department



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