

# Catalog of Currently Available Weapons and Devices



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**25 October 1995**

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13. ABSTRACT (Maximum 200 words) The purpose of this catalog is to provide an up-to-date listing of currently available limited effects weapons and devices. The catalog is divided into two main sections: Anti-personnel and Anti-materiel. Much of the information contained in the document came from various manufacturers and the data has not been tested or verified by the government.				
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## Executive Summary

The purpose of the catalog is to provide the user with an up to date listing of currently available limited effect weapons and devices. The catalog is divided into two main sections, Anti-Personnel and Anti-Materiel. The weapons and devices which fall under the Anti-Personnel section far out number the weapons and devices in the Anti-Materiel section. This lack of balance reflects the law enforcement focus on apprehending and controlling individuals and small groups as opposed to rendering useless a vehicle, firearm, or device.

Each of the two main sections contain a number of categories. The categories under Anti-Personnel are Ballistic Devices, CS/CN Grenades, CS/CN Projectiles, CS/CN Mace® Sprays, Diversion and Distraction Devices, Electrical Devices, Enabling Devices, Entanglements, Light Devices, Miscellaneous, OC Grenades, OC Projectiles, OC Sprays, and Smoke Devices. The categories under Anti-Materiel are Ballistic Devices, Electrical Devices, Entanglements, and Spikes.

Under each category, a number of weapons or devices are listed. The type of information which appears under each weapon or device listing is the weapon or device name, a verbal description of the weapon or device, potential targets or applications, incapacitation mechanism, physical data, performance characteristics, point of contact for the developer or supplier, and cost.

It should be noted that the much of the information contained in this catalog was derived from the manufacturer's brochures and correspondence. Unless a catalog entry specifically states otherwise, the physical, performance, and target effect information for the weapons and devices was obtained from the respective manufacturer and has not been independently tested or verified by the Government. Also, please note that some vendors use "M" numbers as part of their model or device designation. Unless stated otherwise, this does not indicate that these items have been Type Classified.

A few weapons or devices appear in more than one category. This occurs for two reasons. First, a weapon or device may be available in several different models or variations. For example, the T-16 Flameless Expulsion Grenade is available with OC, CS, or CN. This causes the device to appear under the OC Grenade and CS/CN Grenade categories. Second, the weapon or device may have two or more distinct effects. For example, the M452C Combo Stingball Impact / Tear Gas Grenade produces two very distinct effects, ballistic impact and tear gas.

The current draft version of the catalog is nearly complete. The work that remains will be comprised of entering only 15 to 20 more weapons, devices, rounds, etc, gathering details on cost, size, weight, Government points of contact, further organizing the weapons and devices within each category, and refining the descriptive names used to easily identify the weapons and devices.

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** MA/RA 88 MUZZLE LAUNCHED RUBBER AMMUNITION  
MA/RA 83 MUZZLE LAUNCHED RUBBER AMMUNITION

**3. Photograph/Description:** MA/RA 88 and MA/RA 83 are muzzle-launched rubber ammunition. They contain 15 rubber pellets. MA/RA 88 has ball-shaped projectiles and MA/RA 83 has cylindrical-shaped projectiles. They are designed to scatter over a wide area

**4. History/Background:** Developed by TASS - Israel Industries

**5. Potential Targets/Applications:** Riot control

**6. Primary Users:** Law enforcement and military forces

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The rubber projectiles impact the subjects, causing pain and discomfort.

**8. Physical Data**

a. **Size:** 50 mm diameter, 180 mm long

b. **Weight:** 650 grams (mass)

c. **Power Requirements:** No electrical power, but does require a special 5.56 mm ballistic function cartridge.

**9. Performance Characteristics**

a. **Effect on Target:** Causes pain and discomfort

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** On the order of minutes to hours depending on the range from which the projectiles were launched.

d. **Range:** Using an M16A2 rifle, a MA/RA 83 has a range of 20-60 meters, and MA/RA 88 has a range of 30-80 meters. It also has a dispersion of a 7 meter arc at 50 meters

**10. Delivery Means:** Muzzle-launched.

**11. Operational Strengths:** Fits standard weapons used by police and military forces providing they are equipped with NATO standard 22 mm flash suppressors. Does not use fuzes or explosives.

**12. Operational Limitations**

a. **Countermeasures:** Heavy clothing, shields, trees, dense shrubs

b. **Weather, Environment Limitations:** Little if any effect

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The ammunition could result in serious injury or death if fired at close range and directly at the

individual(s). Estimated 5 - 10 second attach/reload time.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:** Mr. John Cline  
ARDEC  
(201)724-6053  
DSN 880-6053

**b. Manufacturer:** Mr. Dave Broden  
Alliant Techsystems  
600 Second Street NE  
Hopkins, MN 55343 USA  
Tel: (612) 931-4149  
Fax: (612) 931-6654

**16. Cost:**

MA/RA 88	\$100/round (up to 2,000 rounds)
MA/RA 83	\$100/round (up to 2,000 rounds)

Note: Prices may decrease with increased volume of order

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 15 STINGER® GRENADE WITH RUBBER PELLETS

**3. Photograph/Description:** This grenade has a rubber ball body. It contains an explosive charge and approximately 180 3/8 inch diameter pellets. When the explosive is detonated, the pellets disperse in all directions. The grenade is designed to be hand thrown. Three units are available:

No. 15 Stinger with Rubber Pellets and CS agent;

No. 15 Stinger with Rubber Pellets and OC agent;

No. 15 Stinger with Rubber Pellets;

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The rubber pellets are launched at high speeds due to the grenade detonation. The pellets sting when they skin or skin covered by light weight clothing. With the CS and OC agents, incapacitation is achieved through a burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if an individual is exposed to large concentrations of CS or if the agent is ingested.

**8. Physical Data**

a. **Size:** 5.2 inch length x 3.1 inch diameter

b. **Weight:** 10 oz.

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Rubber pellets sting on impact, cause pain and discomfort.

b. **Time to Effect:** Nearly instantaneous

c. **Duration of Effect:** Seconds to minutes depending upon which grenade is used

d. **Range:** 50 feet diameter spread.

**10. Delivery Means:** Grenade is hand thrown.

**11. Operational Strengths:** A single grenade can effect a large number of people simultaneously.

**12. Operational Limitations**

a. **Countermeasures:** Heavy clothing or a shield may reduce the effect of the pellets impact. The effectiveness of CS and OC may be reduced by the use of gas masks or wet rags.

- b. **Weather, Environment Limitations:** Heavy rain or wind may reduce the effectiveness of the CS and OC.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

- a. **Government:** Mr. John Cline  
ARDEC  
(201)724-6053  
DSN 880-6053
- b. **Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:**

No. 15 Stinger with Rubber Balls and CS	\$35.40	(Code 1088)
No. 15 Stinger with Rubber Balls and OC	\$35.40	(Code 1089)
No. 15 Stinger with Rubber Balls	\$37.25	(Code 1090)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE FLEXIBLE BATON CLOSE RANGE BEAN BAG;  
12 GAUGE FLEXIBLE BATON STANDARD BEAN BAG

**3. Photograph/Description:** A 12 gauge cartridge containing a lead shot filled 2 inch square fabric bag. It is designed to be non-penetrating and to deliver kinetic energy over a broad surface area. Cartridges are available with an optional marking dye used for identification of individuals.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd Control, use at correctional facilities, animal control

**6. Primary Users:** Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Delivers a strong blow which momentarily stuns the subject without penetration of the body. The 2 inch square bag collapses on impact and conforms to the target, as the lead shot acts as a fluid medium distributing the kinetic energy over a wide surface area.

**8. Physical Data**

- a. **Size:** 2.75 inch diameter
- b. **Weight:** 1.4 ounces
- c. **Power Requirements:** 12 gauge shotgun

**9. Performance Characteristics**

- a. **Effect on Target:** Stuns an individual without penetrating the body. The flexible baton can cause bruises and minor skin abrasions.
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.
- d. **Range:** Flexible Baton Close has a range of 10 to 50 feet and is fired at 230 feet per second. It may be lethal if fired at a range of less than 10 feet.  
Flexible Baton Standard has a range of 30 to 100 feet and is fired at 300 feet per second. It may be lethal if fired at a range of less than 30 feet.

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Heavy clothing may decrease the effectiveness of the Flexible Baton.

**b. Weather, Environment Limitations:** The officer must accurately hit the target for the baton to be effective. The trajectory of the Flexible Baton Close Range can be expected to drop 6 inches at 25 yards. The trajectory of the Flexible Baton Standard can be expected to drop 2 inches at 25 yards.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** This ammunition will not cycle semi-automatic shot guns. If shot gun has a front bead that protrudes into the bore, it may cut the bag. Fatal or serious injuries may occur if fired at point blank ranges at the head, neck, heart, or liver.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** MK Ballistic Systems  
2707 Santa Ana Valley Rd.  
Hollister, CA 95023  
(408) 636-1504 phone  
(408) 636-8657 fax

<b>16. Cost:</b>	Flexible Baton Close Range (Box of 5)	\$17.95	(Code 4000)
	Flexible Baton Close Range-Marking (Box of 5)	\$21.17	(Code 4010)
	Flexible Baton Standard (Box of 5)	\$17.95	(Code 4020)
	Flexible Baton Standard-Marking (Box of 5)	\$21.17	(Code 4030)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE SHORT RANGE RUBBER SLUG AMMUNITION;  
12 GAUGE LONG RANGE RUBBER SLUG AMMUNITION;  
12 GAUGE RUBBER BUCKSHOT AMMUNITION

**3. Photograph/Description:** Deterrent ammunition may be used in any standard 12 gauge shotgun. Uses lightweight rubber projectiles that travel at a high velocity. This has the equivalent knock-down power of most firearms cartridges without the penetration. This ammunition can be fatal at extremely short range

**4. History/Background:**

**5. Potential Targets/Applications:** Unruly assailant, rioting crowds

**6. Primary Users:** Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Impact of rubber ammunition stuns individual and momentarily incapacitates him.

**8. Physical Data**

a. **Size:** 12 gauge, 2.75 inch long cartridge

b. **Weight:**

c. **Power Requirements:** 12 gauge shotgun

**9. Performance Characteristics**

a. **Effect on Target:** Short Range Slug is designed to neutralize a person at ranges between 10 feet and 115 feet. It may cause fatalities if fired from less than 10 feet.

Long Range Slug is designed to neutralize person at ranges between 98 feet and 252 feet. It may cause fatalities if fired from less than 82 feet.

Rubber Buckshot is designed to disperse rioters at a range of about 98 feet. Its shot pattern at 65 feet is 6.5 foot diameter. It could cause fatal wounds at a range of less than 10 feet.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

d. **Range:** Short Range Slug ranges 10 feet to 115 feet;

Long Range Slug ranges 98 feet to 252 feet;

Rubber Buckshot ranges 10 feet to 98 feet;

**10. Delivery Means:** 12 gauge shotgun

**11. Operational Strengths:**

**12. Operational Limitations**



a. Countermeasures: Shields, trees, dense shrubs

b. Weather, Environment Limitations: High winds may effect accuracy at longer ranges.

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
This ammunition may cause fatalities if fired at close range.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Phoenix Systems Inc.  
P.O. Box 3339  
Evergreen, Co 80439  
(303) 277-0305 phone  
(303) 278-8101 fax

<b>16. Cost:</b>	Short Range Slugs (5 pack)	\$12.95	(Code 2030)
	Long Range Slugs (5 pack)	\$12.95	(Code 2031)
	Rubber Buckshot (5 pack)	\$12.95	(Code 2032)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE NO. 23 BR (BEAN BAG) PROJECTILES

**3. Photograph/Description:** This round is designed for crowd situations where the use of conventional ammunition may injure innocent bystanders. The shot gun shell is loaded with one shot-filled bean bag which weighs 1.44 oz.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The bean bag impacts an individual at high speed causing pain and discomfort.

**8. Physical Data**

a. **Size:** Length = 2.6 inches, caliber = 12 gauge

b. **Weight:** 1.79 oz. (Bean Bag weighs 1.44 oz.)

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** The bean bag causes pain and discomfort on impact.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

d. **Range:** Effective range is 50 feet. (maximum range is 150 feet)

**10. Delivery Means:** Fired from a 12 gauge shot gun, the bean bag has a velocity of 280 feet per second.

**11. Operational Strengths:** The 12 gauge shot gun is in wide use.

**12. Operational Limitations**

a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs

b. **Weather, Environment Limitations:** High winds and/or heavy rain may decrease the accuracy of the round.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** One shot round.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government**

Mr. John Cline  
ARDEC  
DSN 880-724-6053  
(201) 724-6053

**b. Manufacturer:**

Mr. Bill Moles  
Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost: No. 23 BR**

\$4.28/round or \$101.04 for 25 rounds (Code 3025)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE NO. 23 HV (HIGH VELOCITY) RUBBER PELLETS PROJECTILE

**3. Photograph/Description:** This round is designed for crowd situations where the use of conventional ammunition may injure innocent bystanders. The shot gun shell is loaded with 12 high-velocity rubber pellets. The pellets weigh 0.44 grams each and are 0.33 inch diameter.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The rubber pellets impact an individual at high speed causing pain and discomfort.

**8. Physical Data**

a. **Size:** Length = 2.7 inches, caliber = 12 gauge

b. **Weight:** 0.64 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** The rubber pellets cause pain and discomfort on impact.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

d. **Range:** maximum effective range is 60 ft (maximum range is 125 ft)

**10. Delivery Means:** Fired from a 12 gauge shot gun, the rubber pellets have velocities of 700 feet per second.

**11. Operational Strengths:** The 12 gauge shot gun is in wide use.

**12. Operational Limitations**

a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs

b. **Weather, Environment Limitations:** Severe wind conditions may affect accuracy of projectile

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

- a. Government:** Mr. John Cline  
ARDEC  
DSN 880-724-6053  
(201) 724-6053
- b. Manufacturer:** Mr. Bill Moles  
Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost: No. 23 HV**      \$3.84/round or \$89.88 for 25 rounds      (Code 3020)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE NO. 23 RP (RUBBER PELLETS) PROJECTILES

**3. Photograph/Description:** This round is designed for crowd situations where the use of conventional ammunition may injure innocent bystanders. The shot gun shell is filled with fifteen 3/8 inch diameter rubber pellets. The round is designed to be skip-fired into the unruly crowd.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The rubber pellets impact individuals at high speed causing pain and discomfort.

**8. Physical Data**

a. **Size:** Length = 2.7 inches, caliber = 12 gauge

b. **Weight:** 0.61 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** The rubber pellets cause pain and discomfort on impact.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

d. **Range:** 60 to 70 feet.

**10. Delivery Means:** Fired from a 12 gauge shot gun, the pellets have a velocity of 400 feet per second.

**11. Operational Strengths:** The 12 gauge shot gun is in wide use.

**12. Operational Limitations**

a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:** Mr. John Cline  
ARDEC  
DSN 880-724-6053  
(201) 724-6053

**b. Manufacturer:** Mr. Bill Moles  
Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost: No. 23 RP**      \$3.64/round or \$85.36 for 25 rounds      (Code 3016)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE NO. 23 RS (RUBBER SABOT) PROJECTILES

**3. Photograph/Description:** This round is designed for crowd situations where the use of conventional ammunition may injure innocent bystanders. The shot gun shell is loaded with a rubber sabot projectile.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The rubber sabot impacts an individual at high speed causing pain and discomfort.

**8. Physical Data**

a. **Size:** Length = 2.7 inches, caliber = 12 gauge

b. **Weight:** 0.64 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** The rubber sabot causes pain and discomfort on impact.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

d. **Range:** Effective range of 40 feet (maximum range of 150 ft)

**10. Delivery Means:** Fired from a 12 gauge shot gun, the sabot has a velocity of 390 feet per second.

**11. Operational Strengths:** The 12 gauge shot gun is in wide use.

**12. Operational Limitations**

a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round.

**13. Requirements Documentation:** None

**14. System Developer:**



**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost: No. 23 RS**

**\$3.64/round or \$85.36 for 25 rounds**

**(Code 3015)**

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE NO. 23 SB (SINGLE RUBBER BALL) PROJECTILES

**3. Photograph/Description:** This round is designed for crowd situations where the use of conventional ammunition may injure innocent bystanders. The shot gun shell is loaded with one rubber ball.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The rubber ball impacts an individual at high speed causing pain and discomfort.

**8. Physical Data**

a. **Size:** Length = 2.6 inches, caliber = 12 gauge, (Rubber Ball has diameter of 0.69 inches)

b. **Weight:** 0.56 oz. (Rubber Ball weighs 0.13 oz.)

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** The rubber ball causes pain and discomfort on impact.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

d. **Range:** Effective range of 70 ft (maximum range of 100 ft)

**10. Delivery Means:** Fired from a 12 gauge shot gun, the rubber ball has a velocity of 910 feet per second.

**11. Operational Strengths:** The 12 gauge shot gun is in wide use.

**12. Operational Limitations**

a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs

b. **Weather, Environment Limitations:** High winds and/or heavy rain may decrease the accuracy of the round.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

- a. Government:** Mr. John Cline  
ARDEC  
DSN 880-724-6053  
(201) 724-6053
- b. Manufacturer:** Mr. Bill Moles  
Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:** No. 23 SB      \$3.64/round or \$85.36 for 25 rounds      (Code 3017)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE NO. 23 WB (WOODEN BATON) PROJECTILES

**3. Photograph/Description:** This round is designed for crowd situations where the use of conventional ammunition may injure innocent bystanders. The shot gun shell is loaded with a 1.15 in by 0.6 in wooden baton. The wooden baton weighs 0.14 ounces. The round is designed to be skip-fired into the unruly crowd.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The wooden baton impacts an individual at high speed causing pain and discomfort.

**8. Physical Data**

- a. **Size:** Length = 2.6 inches, caliber = 12 gauge
- b. **Weight:** 0.56 oz. (Wood Baton weighs 0.11 oz.)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** The wooden baton causes pain and discomfort on impact.
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.
- d. **Range:** Effective range of 60 yards (maximum range of 100 yards)

**10. Delivery Means:** Fired from a 12 gauge shot gun, the sabot has a velocity of 975 feet per second.

**11. Operational Strengths:** The 12 gauge shot gun is in wide use.

**12. Operational Limitations**

- a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

- a. Government:** Mr. John Cline  
ARDEC  
DSN 880-724-6053  
(201) 724-6053
- b. Manufacturer:** Mr. Bill Moles  
Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost: No. 23 WB**      \$3.84/round or \$89.88 for 25 rounds      (Code 3018)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM KO1 BATON AMMUNITION  
7 MM KO1LE BATON AMMUNITION

**3. Photograph/Description:** Cartridge Cases are made of aluminum with a rebated rim and can be reloaded.

**4. History/Background:**

**5. Potential Targets/Applications:**

**6. Primary Users:** Law enforcement, correctional institutions

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

**8. Physical Data**

- a. Size: 37 mm diameter
- b. Weight: 2.2 ounces
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target:
- b. Time to Effect:
- c. Duration of Effect: Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.
- d. Range: KO1 has an 80% probability of hitting target at 100 yards  
KO1LE has an 80% probability of hitting target at 20 yards
- e. Velocity: KO1 240 feet per second  
KO1LE 175 feet per second

**10. Delivery Means:** Model SL-6 or Model PL-37 projectile launcher

**11. Operational Strengths:**

**12. Operational Limitations**

- a. Countermeasures: Heavy clothes, shield, trees, dense shrubs
- b. Weather, Environment Limitations:
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Sage Control Ordnance, Inc.  
630 Oakland Ave.  
Pontiac, MI 48342  
(810) 253-1991  
(810) 252-1948 fax

<b>16. Cost:</b>	KO1	\$16.75/round
	KO1LE	\$16.75/round
	Reload Die Kit	\$329.00

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM FLEXIBLE BATON CLOSE RANGE;  
37 MM FLEXIBLE BATON LOW IMPACT;  
37 MM FLEXIBLE BATON STANDARD;  
37 MM FLEXIBLE BATON LONG RANGE;  
37 MM FLEXIBLE BATON SUPER LONG RANGE;  
37 MM FLEXIBLE BATON TRI-FLEX;  
37 MM FLEXIBLE BATON MULTI-FLEX;  
37 MM FLEXIBLE BATON PLASTIC SHOT

**3. Photograph/Description:** 37mm cartridges containing a lead shot filled 3 inch diameter fabric bag. It is designed to be non-penetrating and to deliver kinetic energy over a broad surface area. Cartridges are available with a optional marking dye used for identification of individual. Batons can be reloaded into steel cases if bags do not tear upon impact. It is not advisable to reload aluminum cases.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd Control, use at correctional facilities, animal control

**6. Primary Users:** Law enforcement and military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Delivers a strong blow which momentarily stuns subject without penetrating the body. The 2 inch square bag collapses impact and conforms to the target. The lead shot acts as a fluid medium, distributing the kinetic energy over a wide surface area.

**8. Physical Data**

- a. Size:** All batons are 3 inches in diameter except the Tri-Flex which contains three 2.25 inch diameter batons and the Multi-Flex which contains five 2.0 inch square Batons.
- b. Weight:** 150 grams (5.33 oz.)
- c. Power Requirements:** The Flexible Baton can be fired from a standard 37mm gas gun but for best accuracy and terminal effects a rifled bore or adapter should be utilized.

**9. Performance Characteristics**

- a. Effect on Target:** Stuns individual without penetrating the body. The flexible baton can cause bruises and minor skin abrasions.
- b. Time to Effect:** Instantaneous
- c. Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.
- d. Range:**

Cartridge Name	Useful Range	Potentially Lethal Range
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	(feet)	(feet)
Close Range	10-65	Less than 10
Low Impact	35-150	Less than 35
Standard	75-175	Less than 75
Long Range	110-220	Less than 110
Super Long Range	145-220	Less than 145
Tri-Flex	100-200	Less than 100
Multi-Flex	100-200	Less than 100

**e. Muzzle Velocity:**

Cartridge Name	Velocity (feet per second)
Close Range	110
Low Impact	150
Standard	180
Long Range	210
Super Long Range	240
Tri-Flex	180
Multi-Flex	180

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:** Heavy clothes, shield, trees, dense shrubs

**b. Weather, Environment Limitations:** The officer must accurately hit target for baton to be effective.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

This ammunition will not cycle semi-automatic shot guns. If shot gun has a front bead that protrudes into the bore, it may cut the bag. Fatal or serious injuries may occur if fired at point blank ranges at the head, neck, heart, or liver.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** MK Ballistic Systems  
2707 Santa Ana Valley Rd.  
Hollister, CA 95023  
(408) 636-1504 phone

(408) 636-8657 fax

**16. Cost:** Note: All prices are for one round. Steel cases are reloadable while aluminum cases are for one shot only. Marking Rounds are Available (add 20% to below prices).

Cartridge Name	Case Material	Price	Code
Flexible Baton-37mm Close Range	Steel	\$22.52	2050
	Aluminum	\$14.85	2075
Flexible Baton-37mm Low Impact	Steel	\$22.52	2150
	Aluminum	\$14.85	2175
Flexible Baton-37mm Standard	Steel	\$22.52	2250
	Aluminum	\$14.85	2275
Flexible Baton-37mm Long Range	Steel	\$22.52	2350
	Aluminum	\$14.85	2385
Flexible Baton-37mm Super Long Range	Steel	\$22.52	2450
	Aluminum	\$14.85	2475
Flexible Baton-37mm Tri-Flex	Steel	\$25.00	2550
	Aluminum	\$16.88	2575
Flexible Baton-37mm Multi-Flex	Steel	\$27.03	2650
	Aluminum	\$18.99	2675
Flexible Baton-37mm Plastic Shot	Steel	\$16.21	2750
	Aluminum	\$13.00	2775

**Reloadable Cases**

Cartridge Case-37mm (Box of 4)	Steel	\$60.00	3810
Cartridge Case-37mm (Box of 4)	Aluminum	\$40.00	3820

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM WOOD BATON ROUNDS  
37 MM RUBBER BATON ROUNDS

**3. Photograph/Description:** The Wood and Rubber Baton Rounds are intended to be ricocheted off the ground in front of a crowd. The Baton rounds are not intended to be fired directly at people nor are they intended to be fired at a range less than 46 meters. The Batons are available in single or multiple wood or rubber configurations. The following models are available:

- 252 (contains a single wood baton);
- 252-R (contains a single rubber baton);
- 264-W (contains five wood batons);
- 264-R (contains five rubber batons);
- a wood or rubber three-baton version is available on special order

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Incapacitation is achieved through pain caused by ballistic impact.

**8. Physical Data**

- a. Size:** 252 and 252-R are 4 5/16 inches long and 1 1/2 inches in diameter;  
264-W and 264-R are 8 5/16 inches long and 1 1/2 inches in diameter
- b. Weight:** 252 weighs 220 grams  
252-R weighs 235 grams  
264-W weighs 200 grams  
264-R weighs 220 grams
- c. Power Requirements:** None

**9. Performance Characteristics**

- a. Effect on Target:** Pain due to ballistic impact
- b. Time to Effect:** Instant
- c. Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted
- d. Range:** 100 yards

**10. Delivery Means:** 37 mm gas gun

**11. Operational Strengths:** Provides standoff from the target

**12. Operational Limitations**

- a. Countermeasures: Heavy clothes, shield, trees, dense shrubs
- b. Weather, Environment Limitations: None
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
At close ranges the projectiles could be lethal if they strike the body in key locations.

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

<b>16. Cost:</b>	252	\$15.00/round	(Code 106020)
	252-R	\$15.00/round	(Code 106020A)
	264-W	\$14.50/round	(Code 105005)
	264-R	\$15.00/round	(Code 105005A)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM STINGBAG IMPACT ROUND

**3. Photograph/Description:** This round is a high strength fabric bag which is 3 inches in diameter and is filled with lead shot. It is loaded into a 37/38 mm round. The round is designed to deliver a powerful blow to an individual without causing serious injury. The stingbag is available in three power loadings: low, medium, and high.

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control. suspect apprehension

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The lead shot filled bag impacts the individual causing pain and discomfort.

**8. Physical Data**

**a. Size:** 109 mm length

**b. Weight:** Low power load has a propellant weight of 1.74 grams and a total weight mass of 87.3 grams. The high power load has a propellant weight of 3.13 grams and a total mass of 95.6 grams

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Pain and discomfort.

**b. Time to Effect:** Instantaneous

**c. Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

**d. Range:**

**10. Delivery Means:** 37 / 38 mm gas gun

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:** Heavy clothes, shield, trees, dense shrubs

**b. Weather, Environment Limitations:** High winds might effect the trajectory of the bag.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Precision Ordnance Products Inc.  
P. O. Box 80437  
Phoenix, Arizona 85060  
1-800-782-7352  
(602) 840-1151 fax

**16. Cost: Stingbag Impact Round**      \$600.00 per case of 24 rounds

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 20 MULTIPLE BATON ROUND WOOD  
37 MM NO. 20 MULTIPLE BATON ROUND FOAM RUBBER

**3. Photograph/Description:** No. 20 is designed for crowd control. It is skip-fired from a 37/38 mm gas gun. The round contains five foam rubber (No. 20F) or five wood batons (No. 20W) which impact the crowd.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
The batons impact individuals causing pain and discomfort.

**8. Physical Data**

- a. **Size:** Length = 8 inches, caliber = 1.5 inches (37/38 mm)
- b. **Weight:** The foam rubber baton round (No. 20F) weighs 6.4 oz.  
The wood baton round (No. 20W) weighs 6.0 oz.
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Causes pain when the batons impact the body.
- b. **Time to Effect:** Short period of time
- c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted
- d. **Range:** The foam rubber baton round has an effective range of 50 feet (maximum range of 100 ft). The wood baton round has an effective range of 150 feet (maximum range of 300 ft).

**10. Delivery Means:** The round is skip-fired from a 37/38 mm gas gun.

**11. Operational Strengths:** No fire potential

**12. Operational Limitations**

- a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round

**13. Requirements Documentation:** None

**14. System Developer**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer: :** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 20F (Multiple Foam Rubber Baton) \$14.88/round	(Code 1178)
	No. 20W (Multiple Wood Baton) \$14.40/round	(Code 1176)



**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 mm NO. 27A STINGER® CARTRIDGE  
37 mm NO. 28A (5.5 INCH) STINGER® CARTRIDGE

**3. Photograph/Description:** This 37/38 mm round is designed for crowd situations where the use of conventional ammunition may injure innocent bystanders. The 27A shell is filled with one hundred seventy five 3/8 inch diameter rubber pellets. The 28A shell is filled with twenty seven 0.60 inch diameter rubber pellets. The round is designed to be skip-fired into a crowd. If skip-fired at a distance of 30 feet and with an impact at 6 feet in front of the crowd, the average spread pattern is 5 feet wide and 42 inches high. If fired directly into the crowd from a distance of 30 feet, the average spread pattern is 3 feet in diameter.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The rubber pellets impact individuals at high speed causing pain and discomfort.

**8. Physical Data**

a. **Size:** Length = 5.5 inches, caliber = 1.5 inch (37/38 mm)

b. **Weight:** 27A weighs 3.5 oz.  
28A weighs 3.7 oz.

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** The rubber pellets cause pain and discomfort upon impact.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

d. **Range:** 27A has an effective range of 30 ft (maximum range of 100 ft)  
28A has an effective range of 50 ft (maximum range of 150 ft)

**10. Delivery Means:** Fired from a 37/38 mm gas gun, 27A pellets have a velocity of 300 feet per second and 28A pellets have a velocity of 280 feet per second.

**11. Operational Strengths:** These rounds offer more controlled dispersion patterns than Stinger® grenades.

**12. Operational Limitations**

- a. Countermeasures: Heavy clothes, shield, trees, dense shrubs
- b. Weather, Environment Limitations: None
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
One shot round.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

- a. Government: Mr. John Cline  
ARDEC  
DSN 880-724-6053  
(201) 724-6053
- b. Manufacturer: Mr. Bill Moles  
Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	27A (Multiple 32 Cal. Rubber Balls)	\$11.00/round	(Code 1196)
	28A (Multiple 60 Cal. Rubber Balls)	\$12.96/round	(Code 1198)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 27B STINGER® CARTRIDGE  
37 MM NO. 28B (8 INCH) STINGER® CARTRIDGE

**3. Photograph/Description:** This 37/38 mm round is designed for crowd situations where the use of conventional ammunition may injure innocent bystanders. The 27B shell is filled with two hundred twenty five 0.32 inch diameter rubber pellets. The 28B shell is filled with forty two 0.60 inch diameter rubber pellets. The round is designed to be skip-fired into a crowd.

If skip-fired at a distance of 40 feet with an impact 6 feet in front of the crowd, the average spread pattern that is 7 feet wide and 48 inches high. If fired directly into the crowd from a distance of 40 feet, the average spread pattern is 4 feet in diameter.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The rubber pellets impact individuals at high speed causing pain and discomfort.

**8. Physical Data**

a. **Size:** Length = 8 inches, caliber = 1.5 inch (37/38 mm)

b. **Weight:** 27B weighs 5.1 oz.

28B weighs 5.3 oz.

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** The rubber pellets cause pain and discomfort upon impact.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted

d. **Range:** 27B has an effective range of 30 ft (maximum range of 100 ft)

28B has an effective range of 50 ft (maximum range of 150 ft)

**10. Delivery Means:** Fired from a 37/38 mm gas gun, 27B pellets have a velocity of 325 feet per second and 28B pellets have a velocity of 280 feet per second.

**11. Operational Strengths:** These rounds offer more controlled dispersion patterns than Stinger® grenades.

**12. Operational Limitations**

- a. Countermeasures: Heavy clothes, shield, trees, dense shrubs
- b. Weather, Environment Limitations: None
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
One shot round.

13. Requirements Documentation: None

14. System Developer:

15. Manufacturer/Contractor

- a. Government: Mr. John Cline  
ARDEC  
DSN 880-724-6053  
(201) 724-6053
- b. Manufacturer: Mr. Bill Moles  
Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

16. Cost:	27B (Multiple 32 Cal. Rubber Balls)	\$13.80/round	(Code 1197)
	28B (Multiple 60 Cal. Rubber Balls)	\$16.32/round	(Code 1199)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37/40 MM PSI UNIVERSAL LESS-LETHAL AMMUNITION

**3. Photograph/Description:** This ammunition is available in a variety of configurations. Cartridges can be loaded with varying strengths of propelling charge, single and multiple Stun-Bags, dye markers, plastic pellets, wooden blocks, or tear gas (CN/CS). An empty cartridge is available which is suitable for re-loading. The payloads are propelled by a standard 0.38 cartridge which is inserted into the base of the Universal cartridge case. The ammunition can be fired by the PSI Stun-Gun weapon and the military M79 and M203 grenade launchers.

**4. History/Background:**

**5. Potential Targets/Applications:** Personnel dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation is achieved through ballistic impact or through tear gas (CN/CS), depending on the payload used.

**8. Physical Data**

- a. **Size:** Single Stun-Bag is 76 mm in diameter, Double Stun-Bags are 64 mm in diameter, triple Stun-Bags are 50 mm in diameter
- b. **Weight:** Plastic pellet round contains 45 grams of plastic pellets
- c. **Power Requirements:** Utilizes 0.38 cartridge

**9. Performance Characteristics**

- a. **Effect on Target:** Knock down personnel, incapacitate with tear gas, or mark with a dye
- b. **Time to Effect:** Instantaneous to a few seconds
- c. **Duration of Effect:** Minutes to hours for ballistic impact depending on the range from which the device was fired and the region of the body which was impacted. For tear gas (CS/CN) 20-30 minutes for tear gas. Hours to days for the dye markers
- d. **Range:** 15 meters to 90 meters

**10. Delivery Means:** PSI Stun-Gun weapon, M79 and M203 grenade launchers.

**11. Operational Strengths:** Provides a variety of limited effects capabilities

**12. Operational Limitations**

- a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs
- b. **Weather, Environment Limitations:** High wind conditions may reduce accuracy of Stun-Bag,

and may disperse tear gas. Extreme hot/cold conditions may affect Stun-Bag energy. That is extreme heat may increase the impact velocity and, conversely, extreme cold may decrease the impact velocity for a given range.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The dischargers are single shot devices. Therefore, multi-shot/recycle time will be dependant on the operators ability to reload the discharger in a timely fashion.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

<b>a. Government:</b>	Mr. John Cline ARDEC DSN 880-6053 (201)724-6053
<b>b. Manufacturer:</b>	LEWCA: Less Lethal Weapons of America 1709F Airline Highway Suite 125 Hollister, CA 95023

**16. Cost:**

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 40 MM BALLISTIC STUN SYSTEM (SHOT FILLED CLOTH BAG)

**3. Photograph/Description:** 40 mm discharger which fires a collapsed cloth bag filled with metal shot. When the bag is fired, it spins and expands to its full diameter.

**4. History/Background:**

**5. Potential Targets/Applications:** Personnel (individual) dispersal, and small crowd dispersal

**6. Primary Users:** Military, Law Enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The incapacitation mechanism is physical impact. The cloth bag filled with metal shot contains sufficient kinetic energy to knock down an individual at ranges up to 200 meters (656 feet). The risk of permanent injury is reduced by the deformability of the cloth bag and by the large impact area that the cloth bag presents when fully expanded during flight. The diameter of the cloth bag when fully expanded is approximately 76 mm (3 inches).

**8. Physical Data**

**a. Size:** 76 mm in diameter (3 inches) when fully expanded during flight

**b. Weight:**

**c. Power Requirements:** Self-contained cartridge/round

**9. Performance Characteristics**

**a. Effect on Target:** Knocks down individual

**b. Time to Effect:** Instantaneous

**c. Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.

**d. Range:** Up to 200 meters (656 feet)

**10. Delivery Means:** Several delivery means are available:

Stun-Gun Mark 70 - a barrel mounted on the end of a handle/stick.

Stun-Gun Mark 70 Model 3 - a barrel mounted on the end of an extended handle/stick.

Stun-Gun Mark 70 Model 3 - a barrel mounted on the end of an handle/stick with a shoulder stick.

Stinger-37 Adapter - device is clamped to the muzzle of any standard 37 mm gas or riot gun.

Stinger-Stik - a baton-like discharger which fires a unique 12-gauge round containing a Stun-Bag. The discharger will not accept standard 12-gauge rounds.

Stinger-12 - an adapter which fits onto the muzzle of any standard shotgun, and allows the standard 12-gauge shotgun to launch the Stun-Bag.

Prowler-Fouler and Prowlette - baton-like dischargers which use compressed gas as the means of propelling the Stun-Bag. Different gas bottles and gas bottle combinations are available to customize the

power of the Stun-Bag. Available ranges vary from 10 meters to 100 meters.

**11. Operational Strengths:** Provides knock-down power without lethality when used at proper ranges.

**12. Operational Limitations**

**a. Countermeasures:** Heavy clothes, shield, trees, dense shrubs

**b. Weather, Environment Limitations:** High wind conditions may reduce accuracy. Extreme hot/cold conditions may affect Stun-Bag energy. That is extreme heat may increase the impact velocity and, conversely, extreme cold may decrease the impact velocity for a given range.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** The dischargers are single shot devices. Therefore, multi-shot/recycle time will be dependant on the operators ability to reload the discharger in a timely fashion.

Can be lethal if used at short ranges or if certain regions of the body are impacted with the Stun-Bag. May be difficult to use in a crowd. May not be able to isolate an individual in a crowd from a non-lethal range.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:** Mr. John Cline  
ARDEC  
DSN 880-6053  
(201)724-6053

**b. Manufacturer:** LEWCA: Less Lethal Weapons Corporation of America  
1709F Airline Highway  
Suite 125  
Hollister, CA 95023

**16. Cost:**



**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 40 MM FLEXIBLE BATON CLOSE RANGE;  
40 MM FLEXIBLE BATON LOW IMPACT;  
40 MM FLEXIBLE BATON STANDARD;  
40 MM FLEXIBLE BATON LONG RANG;  
40 MM FLEXIBLE BATON SUPER LONG RANGE;  
40 MM FLEXIBLE BATON TRI-FLEX;  
40 MM FLEXIBLE BATON MULTI-FLEX;  
40 MM FLEXIBLE BATON PLASTIC SHOT

**3. Photograph/Description:** A 40 mm cartridge containing a lead shot filled 3 inch diameter fabric bag. It is designed to be non-penetrating and to deliver kinetic energy over a broad surface area. Cartridges are available with an optional marking dye used for identification of individual. Batons can be reloaded into steel cases if bags do not tear upon impact.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd Control, correctional facilities, animal control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Delivers a strong blow which momentarily stuns subject without penetration of the body. The 2 inch square bag collapses on impact and conforms to the target. The lead shot acts as a fluid medium distributing the kinetic energy over a wide surface area.

**8. Physical Data**

- a. Size:** All batons are 3 inches in diameter except the Tri-Flex which contains three 2.25 inch diameter batons and the Multi-Flex which contains five 2.0 inch square Batons.
- b. Weight:** 150 grams/5.33 oz.
- c. Power Requirements:** The Flexible Baton can be fired from a M203, M79, 40 mm Grenade Launcher, or MBA/Trebor 40 mm Stun Gun

**9. Performance Characteristics**

- a. Effect on Target:** Stuns individual without penetrating the body. The flexible baton can cause bruises and minor skin abrasions.
- b. Time to Effect:** Instantaneous
- c. Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted.
- d. Range:**

Cartridge Name	Useful Range	Potentially Lethal Range
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	(feet)	(feet)
Close Range	10-65	Less than 10
Low Impact	35-150	Less than 35
Standard	75-175	Less than 75
Long Range	110-220	Less than 110
Super Long Range	145-220	Less than 145
Tri-Flex	100-200	Less than 100
Multi-Flex	100-200	Less than 100

**e. Muzzle Velocity:**

Cartridge Name	Velocity (feet per second)
Close Range	110
Low Impact	150
Standard	180
Long Range	210
Super Long Range	240
Tri-Flex	180
Multi-Flex	180

**10. Delivery Means:** 40 mm gas gun

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:** Heavy clothes, shield, trees, dense shrubs

**b. Weather, Environment Limitations:** The officer must accurately hit target for baton to be effective.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
This ammunition will not cycle semi-automatic shot guns. If shot gun has a front bead that protrudes into the bore, it may cut the bag. Fatal or serious injuries may occur if fired at point blank ranges at the head, neck, heart, or liver.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** MK Ballistic Systems  
2707 Santa Ana Valley Rd.  
Hollister, CA 95023

(408) 636-1504 phone  
(408) 636-8657 fax

**16. Cost:** Note: All prices are for one round. Steel cases are reloadable. Marking Rounds are available (add 20% to below prices)

Cartridge Name	Case Material	Price	Code
Flexible Baton-40mm Close Range	Steel	\$22.52	2004
Flexible Baton-40mm Low Impact	Steel	\$22.52	2104
Flexible Baton-40mm Standard	Steel	\$22.52	2204
Flexible Baton-40mm Long Range	Steel	\$22.52	2304
Flexible Baton-40mm Super Long Range	Steel	\$22.52	2404
Flexible Baton-40mm Tri-Flex	Steel	\$25.00	2504
Flexible Baton-40mm Multi-Flex	Steel	\$27.03	2604
Flexible Baton-40mm Plastic Shot	Steel	\$16.21	2704

**Reloadable Cases**

Cartridge Case-40mm (Box of 4)	Steel	\$50.00	3800
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**Latest Revision Date:** October 11, 1995

**1. Status:** Developmental Item

**2. Weapon Name:** 40 MM NON-LETHAL CARTRIDGE (FOAM RUBBER PROJECTILE)

**3. Photograph/Description:** The 40 mm Non-Lethal Cartridge provides temporary incapacitation through blunt impact trauma. The projectile consists of a foam rubber nose and a high density plastic projectile body. The cartridge is fired from the 40 mm M203 or M79 Grenade Launchers.

**4. History/Background:** A prototype cartridge was demonstrated by ARL to USSOCOM in November 1993. Design improvements were identified and the need for an initial quantity of cartridges for customer evaluation was established. ARDEC provided assistance in FY94 during the development and manufacture of these prototype cartridges.

**5. Potential Targets/Applications:** Individual personnel

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Incapacitation caused by blunt impact trauma.

**8. Physical Data**

- a. Size: 40 mm diameter
- b. Weight: 60 grams, projectile only
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Incapacitation through blunt impact trauma
- b. Time to Effect: Instant
- c. Duration of Effect: Minutes
- d. Range: Minimum engagement range is 20 meters, maximum effective range is 75 meters, maximum range is 150 meters. Velocity at 50 meters is approximately 160 feet per second.

**10. Delivery Means:** Fired from the 40 mm M203 or M79 Grenade Launchers

**11. Operational Strengths:** Provides standoff from the target

**12. Operational Limitations**

- a. Countermeasures: Heavy clothes, shield, trees, dense shrubs
- b. Weather, Environment Limitations: High winds may decrease accuracy.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Impact at ranges less than 20 meters could be lethal, depending on the impact location on the body.

**13. Requirements Documentation:** None

**14. System Developer:** Joint development effort between the Army Research Laboratory and the Armament Research, Development and Engineering Center.

**15. Manufacturer/Contractor**

**a. Government:**

ARL Point of Contact:  
Mr. Dave Lyon  
DSN 298-7782  
(410) 278-7782

ARDEC Point of Contact  
Mr. Frank Dindi  
DSN 880-6364  
(201) 724-6364

**b. Manufacturer:**

**16. Cost:**

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**12. Operational Limitations**

- a. Countermeasures:** Heavy clothes, shield, trees, dense shrubs. Gas masks or wet rags can reduce the CS effects.
- b. Weather, Environment Limitations:** High winds may effect the accuracy of the projectile, especially at longer ranges. High winds and/or heavy rain may decrease the effectiveness and delivery of the CS.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At very close range, the CS may affect the operator. Current design only operable with M16A1. It requires a M755 5.56 mm blank and a M234 launcher attachment.

**13. Requirements Documentation: None**

**14. System Developer:** Chemical Research and Development Center at Aberdeen Proving Ground, MD

**15. Manufacturer/Contractor**

- a. Government:**
- b. Manufacturer:**

**16. Cost:**

1. **Status:** Currently Available
2. **Weapon Name:** RBC-70 RUBBER-BALL CARTRIDGE
3. **Photograph/Description:** A cartridge which contains 70 rubber-matrix balls with steel particles inside. This cartridge is designed to be used in the Rubber-Ball Launching System (see Enabling Devices section of this catalog) which is mounted on a vehicle. The rubber balls are dispersed in a 15 meter diameter pattern within an effective range of 50 to 120 meters.
4. **History/Background:**
5. **Potential Targets/Applications:** Crowd and riot control
6. **Primary Users:** Israel Law Enforcement and Defense Units
7. **Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Rubber-matrix balls stuns individual without penetration of the body.
8. **Physical Data**
  - a. **Size:** Cartridge is 290 mm long by 73 mm diameter (balls are 19 mm diameter)
  - b. **Weight:** Cartridge is 3.25 kg (balls weigh 16 grams each)
  - c. **Power Requirements:** None
9. **Performance Characteristics**
  - a. **Effect on Target:** Inflicts momentary pain on individual
  - b. **Time to Effect:** Instantaneous
  - c. **Duration of Effect:** Minutes to hours depending on the range and the region of the body which was impacted.
  - d. **Range:** 50 to 120 meters (may be lethal at less than 30 meters)
10. **Delivery Means:** Rubber-Ball Launching System (see Enabling Devices section of this catalog)
11. **Operational Strengths:**
12. **Operational Limitations**
  - a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs
  - b. **Weather, Environment Limitations:**
  - c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Each cartridge contains 70 balls. The Rubber-Ball Launching System is capable of firing 70 balls before reloading.
13. **Requirements Documentation:** None
14. **System Developer:**



**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Alliant Techsystems  
600 Second St. NE  
Hopkins, MN 55343-8384  
(612) 931-4149 phone  
(612) 931-6654 fax

**16. Cost:**

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:**       RCC-95 AMMUNITION  
                              RCC-96 MLO AMMUNITION

**3. Photograph/Description:** Ammunition contains plastic wrapped rubber cylinders which separate at a range of 3 to 5 meters. The RCC-95 contains 3 rubber-coated cylinders with a steel core. The RCC-96 contains 4 rubber-matrix cylinders filled with steel particles. Ammunition may be effectively used as an individual deterrent. The recommended target area is the center of the body mass of the assailant. This ammunition is to be used with the RCC-95/RCC-96 MLO Launch Adapter which slides over the end of a rifle barrel (see Enabling Devices section of this catalog).

**4. History/Background:**

**5. Potential Targets/Applications:** Unruly assailants

**6. Primary Users:** Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

The blunt plastic-coated steel cylinders stun the individual upon impact without penetration of the body.

**8. Physical Data**

- a. **Size:** RCC-95 is 54 mm long by 18 mm diameter;  
          RCC-96 is 75 mm long by 18 mm diameter
- b. **Weight:** RCC-95 weighs 48 grams (3 cylinders of 16 grams each);  
          RCC-96 weighs 42 grams (4 cylinders of 10.5 grams each)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Temporarily stuns or incapacitates individual
- b. **Time to Effect:** Instantaneous upon impact
- c. **Duration of Effect:** Minutes to hours depending on the range from which the device was fired and the region of the body which was impacted, and the type of clothing worn
- d. **Range:** 40-60 meters (less than 40 meters may be lethal)
- e. **Velocity:** 130 feet per second

**10. Delivery Means:** Rifle with special launch adapter (see Enabling Devices section of this catalog)

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs

- b. Weather, Environment Limitations: Heavy winds limit the accuracy of projectiles.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Alliant Techsystems  
600 Second St. NE  
Hopkins, MN 55343-8384  
(612) 931-4149 phone  
(612) 931-6654 fax

<b>16. Cost:</b>	RCC-95	\$25/round (\$20/round for large volumes)
	RCC-96	\$25/round (\$20/round for large volumes)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M452 STINGBALL™ STUN IMPACT GRENADE

**3. Photograph/Description:** This spherical grenade produces a loud blast and a bright flash of light. It also disperses 100 soft rubber, marble-sized stingballs. The grenade is hand-thrown and has a 1 second fuse delay. The stingballs are dispersed in a radial pattern at a velocity of 700 feet per second.

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

The blast and light flash will cause disorientation and confusion. The stingballs will cause pain on impact with the skin.

**8. Physical Data**

- a. **Size:** 3 1/4 inch diameter
- b. **Weight:** 14 1/2 ounces
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Disorientation, confusion, and pain
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:**
- d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

**12. Operational Limitations**

- a. **Countermeasures:** Ear and eye protection for the blast and the light. Heavy clothes, shield, trees, dense shrubs for the stingballs.
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Ear and eye protection should be worn by the user.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
TEL: (800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
TEL: (800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$50.00 each  
\$1200.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M452C COMBO STINGBALL™ IMPACT / TEAR GAS GRENADE

**3. Photograph/Description:** This spherical grenade produces a loud blast and a bright flash of light. It disperses 100 soft rubber, marble-sized stingballs. The grenade is hand-thrown and has a 1 second fuse delay. The stingballs are dispersed in a radial pattern at a velocity of 700 feet per second. Along with these effects, the M452C also releases a quantity of CS tear gas.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The blast and the flash of light may cause disorientation and confusion. The stingballs will cause pain when they impact the skin. Incapacitation using CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. **Size:** 3 1/4 inch diameter
- b. **Weight:** 15 ounces
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** The blast and the flash of light may cause disorientation and confusion. The stingballs will cause pain when they impact the skin. The CS gas causes a burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduced the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** The CS tear gas effect lasts approximately 30 minutes
- d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

## 12. Operational Limitations

a. **Countermeasures:** Ear and eye protection for the blast and the light. Heavy clothes, shield, trees, dense shrubs for the stingballs. Wet rags or a gas mask for the tear gas (wet rags leave the eyes unprotected)..

b. **Weather, Environment Limitations:** Wind may effect the dispersion of the tear gas. The grenade should be thrown downwind so that the user will not be effected by the tear gas.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

The user should wear eye and ear protection as well as a gas mask

## 13. Requirements Documentation: None

14. **System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

## 15. Manufacturer/Contractor

### a. Government:

b. **Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

16. **Cost:** \$55.00 each  
\$1320.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M453 STINGETTE<sup>™</sup> IMPACT / DISTRACTION/DIVERSION GRENADE

**3. Photograph/Description:** This spherical grenade produces a loud blast and a bright flash of light. It also disperses 100 soft rubber, 0.45 caliber stingballs. The grenade is hand-thrown and has a 1 second fuse delay. The M453 is a less powerful version of the M452.

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The blast and light flash will cause disorientation and confusion. The stingballs will cause pain on impact with the skin.

**8. Physical Data**

- a. **Size:** 2 1/2 inch diameter
- b. **Weight:** 7 ounces
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Disorientation, confusion, and pain
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:**
- d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

**12. Operational Limitations**

- a. **Countermeasures:** Ear and eye protection for the blast and the light. Heavy clothes, shield, trees, dense shrubs for the stingballs.
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Ear and eye protection should be worn by the user.

**13. Requirements Documentation:** None



**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$45.00 each  
\$1080.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** STINGBALL ROUND (37MM/38MM)

**3. Photograph/Description:** This 37mm/38mm round fires approximately 50 "00" size rubber stingballs. This grenade can be used to disperse crowds

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Stingballs cause pain when they impact the skin.

**8. Physical Data**

- a. **Size:** 1 1/2 inch diameter, 4 5/8 inches long
- b. **Weight:** 6 ounces
- c. **Power Requirements:** Fired from a 37mm/38mm gas gun.

**9. Performance Characteristics**

- a. **Effect on Target:** Stingballs cause pain when they impact on skin.
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:** Seconds to minutes
- d. **Range:**

**10. Delivery Means:** Fired from a 37mm/38mm gas gun.

**11. Operational Strengths:** Allows a safe stand-off distance from the target.

**12. Operational Limitations**

- a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080

(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$600.00 per case (24 rounds per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** STINGSHOT™ (12 gauge)

**3. Photograph/Description:** The STINGSHOT™ rounds are loaded with non-lethal rubber projectiles. The projectiles can be 18 pellets, 3 balls, or a rubber rocket. Any of these rounds can be used to disperse crowds.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
The rubber projectiles cause pain when they impact skin.

**8. Physical Data**

- a. **Size:** 12 gauge, 2 3/4 inches long
- b. **Weight:** 1 ounce
- c. **Power Requirements:** Fired from a 12 gauge shotgun.

**9. Performance Characteristics**

- a. **Effect on Target:** Impact causes pain.
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:**
- d. **Range:** 5 to 50 meters

**10. Delivery Means:** Fired from a 12 gauge shotgun.

**11. Operational Strengths:** Allows for safe stand-off distance

**12. Operational Limitations**

- a. **Countermeasures:** Heavy clothes, shield, trees, dense shrubs
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454

Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$3.50 each  
\$300.00 per case (100 rounds per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** STINGBAG<sup>™</sup> (12 gauge)

**3. Photograph/Description:** This round fires a cloth bag containing 1 ounce of lead shot. It has a range of 30 meters. The STINGBAG<sup>™</sup> can be used to disable unruly persons or to disperse rioting crowds.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The impact of the bag causes pain on impact with the target.

**8. Physical Data**

a. **Size:** 12 gauge, 2 3/4 inches long

b. **Weight:** 1 1/2 ounces

c. **Power Requirements:** Fired from a 12 gauge shotgun

**9. Performance Characteristics**

a. **Effect on Target:** Impact causes pain and discomfort.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:**

d. **Range:** 30 meters

**10. Delivery Means:** Fired from a 12 gauge shotgun

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Heavy clothes or a shield

b. **Weather, Environment Limitations:** Wind may effect the trajectory of the stingbag.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080

(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$4.00 each  
\$175.00 per case (50 rounds per case)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** BLAST DISPERSION GRENADES (CN or CS)

**3. Photograph/Description:** The Blast Dispersion Grenades are intended for open air use against crowds and rioters. They contain CS or CN in dry powder form. The grenades are for hand throwing only, and can not be launched by a grenade launcher. Provides instantaneous burst for agent dispersion. The grenade has a 0.7 to 2 second fuse delay.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd and riot dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin.

Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:**

**b. Weight:** Total weight is 425 grams, 44 grams of CN or CS

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 2 to 30 minutes depending on the exposure

**d. Range:** Hand-thrown range can vary from 25 to 40 meters

**10. Delivery Means:** Hand-thrown

**11. Operational Strengths:** Instantaneous burst does not allow targeted individuals to pick up the grenade and throw it back.

**12. Operational Limitations**



- a. Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).
- b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

<b>16. Cost:</b>	121CN Blast Dispersion Grenade	\$28.00	(Code 108018)
	514CS Blast Dispersion Grenade	\$28.00	(Code 108024)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** FEDERAL LABORATORIES' MODEL 620 OC/CS AEROSOL GRENADE

**3. Photograph/Description:** This grenade contains combination of OC and CS. The OC makes up 6% of the contents and the CS makes up 2.5% of the contents. The grenade has a fuse delay time of 1 to 2 seconds, and discharges an aerosol fog for 3 seconds. This grenade can be either hand thrown or launched.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation using CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested. Incapacitation using OC is achieved by the burning sensation and the inflammation of the eyes and eyelids, nasal membranes, and respiratory (if inhaled). Temporary blindness may result due to eyelids swelling shut and/or involuntary closing of the eyes.

**8. Physical Data**

**a. Size:**

**b. Weight:** 8 ounces (total weight)

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes. Once fired, the projectiles discharge chemical agent for 3 seconds.

**d. Range:** Hand-thrown range can vary from 25 to 40 meters. Launching range can vary from 100 to 300 meters depending on the type of launcher used.

**10. Delivery Means:** Hand thrown or launched

**11. Operational Strengths:** Quick acting agents

**12. Operational Limitations**

**a. Countermeasures:** CS or OC effectiveness are significantly reduced by a gas mask and wet rags. The OC will still irritate exposed skin. Eyes are still exposed to the agents when wet rags are used.

**b. Weather, Environment Limitations:** CS and OC are susceptible to wind patterns, operator may be exposed to the agent if he is downwind from the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CS and OC dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

**16. Cost:** 620 OC/CS Aerosol Grenade \$35.75 (Code 108001)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** FEDERAL RIOT CONTROL GRENADES (CN or CS)

**3. Photograph/Description:** The riot control grenades are available in six models:

518CS,  
118CN,  
555CS,  
112CN,  
509CS,  
109CN

The 518CS and 118CN models are the commercial version of the US military M7A3 CS grenade and contain 63 grams of CS or CN and emit smoke for 25 seconds.

The 555CS and the 112CN are similar grenades except they contain 77 grams of CS or CN and emit gas for 30 seconds.

The 509CS and 109CN models are pocket sized grenades which contain 17 grams of CS or CN and emit smoke for 20 seconds. The 509CS and 109CN models are sized to fit in a tactical vest.

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control and barricade situations.

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:**

**b. Weight:** Total weight for models 518CS and 118CN is 345 grams.

Total weight for models 555CS and 112CN is 430 grams.

Total weight for models 509CS and 109CN is 170 grams.

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum

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eness.

**c. Duration of Effect:** Approximately 2 to 30 minutes

**d. Range:** Hand-thrown range can vary from 25 to 40 meters. Launching range can vary from 100 to 300 meters depending on the type of launcher used.

**10. Delivery Means:**

**11. Operational Strengths:** Provides standoff capability and contains quick acting agents.

**12. Operational Limitations**

**a. Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

<b>16. Cost:</b>	118CN Riot Control Grenade	\$22.45 (Code 108038)
	518CS Riot Control Grenade	\$22.15 (Code 108026)
	112CN Spedeheat Grenade	\$25.00 (Code 108003)
	555CS Spedeheat Grenade	\$22.00 (Code 108022)
	109CN Pocket Grenade	\$18.20 (Code 108028)
	509CS Pocket Grenade	\$18.15 (Code 108030)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** FLAMELESS GRENADE (CN or CS)

**3. Photograph/Description:** The Flameless Grenade is suitable for indoor use. CN and CS smoke is generated by the grenade with minimal fire start potential. The grenade operates on a 0.7 to 2.0 second delay and generates smoke for approximately 20 seconds. Two models are available, 117 (CN) and 517 (CS).

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:**

**b. Weight:** 350 grams total, 11 grams CN or CS

**c. Power Requirements:**None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing,, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes

**d. Range:** Hand-thrown range can vary from 25 to 40 meters.

**10. Delivery Means:** Hand-thrown

**11. Operational Strengths:**Provides standoff from the target

**12. Operational Limitations**

**a. Countermeasures:** CN and CS effectiveness are significantly reduced by a gas mask and wet

rag (eyes are still exposed to the agent when wet rag is used).

**b. Weather, Environment Limitations:** Intended for indoor use, so there would be no weather, environment limitations.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges and in closed quarters, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

<b>16. Cost:</b>	117CN Flameless Grenade	\$32.00	(Code 108007)
	517CS Flameless Grenade	\$29.00	(Code 108041)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** F-16 FLAMELESS EXPULSION GRENADE (CN OR CS)

**3. Photograph/Description:** This grenade has a rubber ball body and contains pulverized chemical agents. After a one second delay, a carbon dioxide cartridge at the center of the grenade disperses the irritant through four ports along the side of the grenade. This grenade uses no pyrotechnics. It can be used in indoor and outdoor situations.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal, situations where pyrotechnic grenades can not be used.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The grenade can deliver CS or CN. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. **Size:** 6 inch length x 3.1 inch diameter
- b. **Weight:** 12 ounces
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:** Hand-thrown range can vary from 25 to 40 meters. Disperses 98% of its contents into a 12 foot by 20 foot room.

**10. Delivery Means:** Grenade is hand thrown and the chemical agents are discharged instantaneous.

**11. Operational Strengths:** Provides standoff from the target.



## 12. Operational Limitations

**a. Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

## 13. Requirements Documentation: None

## 14. System Developer:

## 15. Manufacturer/Contractor

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	F16CN -Flameless Expulsion CN Grenade	\$24.80 (Code 2031)
	F16CS -Flameless Expulsion CS Grenade	\$24.32 (Code 2032)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** HAN-BALL GRENADE (CN or CS)

**3. Photograph/Description:** This grenade can deliver CN or CS gas. It is spherical and light weight for easy throwing. It is configured to "skitter" along the ground after it is thrown. This makes it less likely that the grenade will be thrown back. The grenade can also be launched. This grenade does have the potential to start a fire. Recommended for outdoor use only. The grenade discharges CN or CS for 7 to 17 seconds.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation using CN or CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:**

**b. Weight:**  $300 \pm 15$  grams (total weight),  $35 \pm 2$  grams of CS or CN

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes.

**d. Range:** Hand-thrown range can vary from 25 to 40 meters. Launching range can vary from 100 to 300 meters depending on the type of launcher used.

**10. Delivery Means:** Hand-thrown or launched

**11. Operational Strengths:** Quick acting agents

## **12. Operational Limitations**

- a. Countermeasures:** CN or CS effectiveness are significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).
- b. Weather, Environment Limitations:** CN and CS are susceptible to wind patterns, operator may be exposed to the agent if he is downwind from the target.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At close ranges, the CN and CS dosage may be dangerously high.

## **13. Requirements Documentation: None**

## **14. System Developer:**

## **15. Manufacturer/Contractor**

### **a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

<b>16. Cost:</b>	119CN Han-Ball Grenade	\$24.00	(Code 108034)
	519CS Han-Ball Grenade	\$22.00	(Code 108035)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** TRIPLE CHASER GRENADE (CN OR CS)

**3. Photograph/Description:** The Triple Chaser Grenade is intended for outdoor crowd control. The grenade can be either hand thrown or gun launched. A short time after launch (0.7 to 2.0 seconds), the grenade splits into three sections and each section begins to discharge CN or CS gas. The gas discharge lasts for approximately 15 to 25 seconds. The grenade is available in two models, model 115 (CN) and 515 (CS).

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:**

**b. Weight:** 490 grams total weight, 77 grams of CN or CS

**c. Power Requirements:**None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing,, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes

**d. Range:** Hand-thrown range can vary from 25 to 40 meters. Launching range can vary from 100 to 300 meters depending on the type of launcher used.

**10. Delivery Means:** Hand-thrown or gun launched

**11. Operational Strengths:**Provides standoff from the target, multiple sections are difficult to pick up and throw back.

## 12. Operational Limitations

- a. **Countermeasures:** CN and CS effectiveness are significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).
- b. **Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At close ranges, the CN and CS dosage may be dangerously high.

## 13. Requirements Documentation: None

## 14. System Developer:

## 15. Manufacturer/Contractor

### a. Government:

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

16. Cost:	115CN Triple Chaser Grenade	\$34.00	(Code 108005)
	515CS Triple Chaser Grenade	\$34.00	(Code 108025)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 2 CONTINUOUS DISCHARGE GRENADE (CN OR CS)

**3. Photograph/Description:** Canister-type grenade with pelletized chemical agent and fly-off fuze. The grenade is either launched from a weapon or thrown by hand. The irritant discharges from one port on the bottom and four ports on top of the canister.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. **Size:** 6.3 inch length x 2.6 inch diameter
- b. **Weight:** 21.9 ounces for CS or CN
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:** Hand-thrown range can vary from 25 to 40 meters. 90 yards when launched with Defense Technology's recommended launcher.

**10. Delivery Means:** Grenade is either hand thrown or launched. The CS or CN discharges for 30 to 40 seconds.

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**

**a. Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 2 CN Continuous Discharge	\$19.84	(Code 1071)
	No. 2 CS Continuous Discharge	\$18.40	(Code 1072)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 3 CONTINUOUS DISCHARGE GRENADE (CN OR CS)

**3. Photograph/Description:** Canister-type grenade with pelletized chemical agent and fly-off fuze. The grenade is either launched from a weapon or thrown by hand. The irritant discharges from one port on the bottom and four ports on top of the canister.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

The grenade can deliver CS, CN, or smoke. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. **Size:** 6 inch length x 2.3 inch diameter
- b. **Weight:** 16 ounces for CS or CN
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:** Hand-thrown range can vary from 25 to 40 meters. 90 yards when launched with Defense Technology's recommended launcher.

**10. Delivery Means:** Grenade is either hand thrown or launched. The CS or CN discharges for 30 to 40 seconds.

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**



**a. Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 3 CN Continuous Discharge	\$17.60	(Code 1081)
	No. 3 CS Continuous Discharge	\$17.44	(Code 1082)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 4 TRIPLE CHARGER GRENADE (CN OR CS)

**3. Photograph/Description:** Canister-type grenade which is designed to break into three sections so that the CN or CS can be dispersed in a wide area.. The grenade is either launched from a weapon or thrown by hand.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The grenade can deliver CS, CN, or smoke. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** 6.5 inch length x 2.4 inch diameter

**b. Weight:** 17 ounces for CS or CN

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes.

**d. Range:** Hand-thrown range can vary from 25 to 40 meters. 90 yards when launched with Defense Technology's recommended launcher.

**10. Delivery Means:** Grenade is either hand thrown or launched. The CS or CN discharges for 20 to 30 seconds.

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**

- a. **Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).
- b. **Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

a. **Government:**

b. **Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 4 CN Triple Charger, Separating	\$26.00	(Code 1025)
	No. 4 CS Triple Charger, Separating	\$27.04	(Code 1026)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 15 RUBBER BALL GRENADE (CN OR CS)

**3. Photograph/Description:** The grenade has a rubber body, pelletized agent inside, and a fly-off fuze. The grenade is either launched from a weapon or thrown by hand. The irritant discharges from four ports on the side of the grenade.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The grenade can deliver CS, CN, or smoke. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** 5.3 inch length x 3.1 inch diameter

**b. Weight:** 11.4 ounces

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes.

**d. Range:** Hand-thrown range can vary from 25 to 40 meters. 90 yards when launched with Defense Technology's recommended launcher.

**10. Delivery Means:** Grenade is either hand thrown or launched. The CS or CN discharges for 15 seconds. This grenade is launchable from a 12 gauge shotgun utilizing the No. 34 launching cup and the No. 35 launching cartridge from Defense Technologies Corp.

**11. Operational Strengths:** Quick acting agents.

## 12. Operational Limitations

**a. Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At close ranges, the CN and CS dosage may be dangerously high.

## 13. Requirements Documentation: None

## 14. System Developer:

## 15. Manufacturer/Contractor

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 15CN Rubber Ball-CN	\$19.04	(Code 1091)
	No. 15CS Rubber Ball-CS	\$17.44	(Code 1092)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 15 STINGER® GRENADE (RUBBER PELLETS WITH CS)

**3. Photograph/Description:** This grenade has a rubber ball body. It contains an explosive charge and approximately 180 3/8 inch diameter pellets. When the explosive is detonated, the pellets disperse in all directions. The grenade is designed to be hand thrown. Three units are available:

No. 15 Stinger with Rubber Pellets and CS agent;

No. 15 Stinger with Rubber Pellets and OC agent;

No. 15 Stinger with Rubber Pellets;

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

After the explosion, the rubber pellets are moving very fast and sting when they impact skin or skin covered by light weight clothing. With the CS and OC agents, incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations of CS or if the it is ingested.

**8. Physical Data**

a. **Size:** 5.2 inch length x 3.1 inch diameter

b. **Weight:** 10 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Rubber pellets sting on impact with light weight clothing or skin. The CS and OC cause a burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Nearly instantaneous

c. **Duration of Effect:** Seconds to minutes depending upon which grenade is used

d. **Range:** Hand-thrown range can vary from 25 to 40 meters. 50 foot diameter coverage.

**10. Delivery Means:** Grenade is hand thrown.

**11. Operational Strengths:**

## 12. Operational Limitations

a. **Countermeasures:** Heavy clothing, shield, trees, or dense shrubs may reduce the sting of the impact of the rubber pellets. The effectiveness of CS and OC may be reduced by the use of gas masks and wet rags (eyes are still exposed to the agent when wet rags are used).

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

13. **Requirements Documentation:** None

14. **System Developer:**

15. **Manufacturer/Contractor**

a. **Government:**

b. **Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

16. <b>Cost:</b>	No. 15 Stinger with Rubber Balls and CS	\$35.40	(Code 1088)
	No. 15 Stinger with Rubber Balls and OC	\$35.40	(Code 1089)
	No. 15 Stinger with Rubber Balls	\$37.25	(Code 1090)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 98 TACTICAL CONTINUOUS DISCHARGE GRENADE (CN OR CS)

**3. Photograph/Description:** This very compact grenade has an aluminum body with pelletized chemical agent. The grenade is either launched from a shotgun or thrown by hand. The irritant discharges from one port on the bottom canister.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The grenade can deliver CS, CN, or smoke. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** 5 inch length x 1.4 inch diameter

**b. Weight:** 6 ounces

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes.

**d. Range:** Hand-thrown range can vary from 25 to 40 meters. 90 yards when launched with Defense Technology's recommended launcher.

**10. Delivery Means:** Grenade is either hand thrown or launched from a shotgun. The CS or CN discharges for 25 seconds.

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**



- a. **Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).
- b. **Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 98CN Tactical Continuous Discharge	\$14.40	(Code 1015)
	No. 98CS Tactical Continuous Discharge	\$14.40	(Code 1016)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** T-16 FLAMELESS EXPULSION GRENADE (OC, CS, OR CN)

**3. Photograph/Description:** This grenade has a cylindrical ABS plastic body and contains pulverized chemical agents. After a one second delay, a carbon dioxide cartridge at the center of the grenade disperses the irritant through two ports along the side of the grenade. This grenade uses no pyrotechnics. It can be used in indoor and outdoor situations. The T-16 grenade will fill a 10 foot by 10 foot by 20 foot room in approximately five seconds. As a result of the T-16 grenade's design, it may also have erratic movements when deployed on hard surface areas such as concrete which restricts the throwback potential.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal, situations where pyrotechnic grenades can not be used.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The grenade can deliver CS or CN. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** 7.5 inch length x 1.65 inch diameter

b. **Weight:** 9.31 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** Approximately 30 minutes.

d. **Range:** Hand-thrown range can vary from 25 to 40 meters. Launching range can vary from 100 to 300 meters depending on the type of launcher used. The grenade will fill a 10 foot x 10 foot x 20 foot room in 5 seconds

**10. Delivery Means:** Grenade is hand thrown and the chemical agents are discharged instantaneous.

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**

**a. Countermeasures:** CN and CS effectiveness is significantly reduced by a gas mask and wet rags (eyes are still exposed to the agent when wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target. Extremely cold temperatures may reduce the rate at which the agent is discharged because of the drop in pressure inside the carbon dioxide cartridge (gas pressure is proportional to temperature). This temperature limitation may be avoided if the device is kept protected and warm, such as stored next to the body under winter clothing until the device is to be operated.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

<b>16. Cost:</b>	T-16 (CN)	(Code 2041)
	T-16 (CS)	(Code 2042)
	T-16 (OC)	(Code 2040)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M452C COMBO STINGBALL™ IMPACT / TEAR GAS GRENADE

**3. Photograph/Description:** This spherical grenade produces a loud blast and a bright flash of light. It disperses 100 soft rubber, marble-sized stingballs. The grenade is hand-thrown and has a 1 second fuse delay. The stingballs are dispersed in a radial pattern at a velocity of 700 feet per second. Along with these effects, the M452C also releases a quantity of CS tear gas.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The blast and the flash of light may cause disorientation and confusion. The stingballs will cause pain when they impact the skin. Incapacitation using CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. **Size:** 3 1/4 inch diameter
- b. **Weight:** 15 ounces
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** The blast and the flash of light may cause disorientation and confusion. The stingballs will cause pain when they impact the skin. The CS gas causes a burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduced the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** The CS tear gas effect lasts approximately 30 minutes
- d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

## **12. Operational Limitations**

**a. Countermeasures:** Ear and eye protection for the blast and the light. Heavy clothes, shield, trees, dense shrubs for the stingballs. Wet rags or a gas mask for the tear gas (wet rags leave the eyes unprotected)..

**b. Weather, Environment Limitations:** Wind may effect the dispersion of the tear gas. The grenade should be thrown downwind so that the user will not be effected by the tear gas.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The user should wear eye and ear protection as well as a gas mask

## **13. Requirements Documentation: None**

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

## **15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$55.00 each  
\$1320.00 per case (24 per case)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE FERRET\* LIQUID AGENT BARRICADE-PENETRATING CARTRIDGE (CN or CS)

**3. Photograph/Description:** This round is designed to release CS or CN into barricaded enclosures or vehicles. The round is fired from a 12-gauge shot gun and can penetrate most common materials at safe stand-off distances. It can penetrate a car windshield at 100 feet, 3/4 inch plywood at 100 feet, 1/4 inch plate glass at 300 feet, a hollow-core door at 300 feet. and a double-panel storm window with screen at 300 feet. The round releases 3 cubic centimeters of chemical agent in aerosol form, and this amount of chemical agent can disable subjects in a 1,000 cubic foot enclosure (10 foot by 10 foot by 10 foot room). There is no fire potential, and since the round disintegrates while penetrating, there is little chance of secondary penetration.

**4. History/Background:**

**5. Potential Targets/Applications:** Barricade situations.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. Size:
- b. Weight:
- c. Power Requirements: None.

**9. Performance Characteristics**

- a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:** It can penetrate a car windshield at 100 feet, 3/4 inch plywood at 100 feet, 1/4 inch plate glass at 300 feet, a hollow-core door at 300 feet. and a double-panel storm window with screen at 300 feet.

**10. Delivery Means:** Fired from a 12-gauge shot gun.

**11. Operational Strengths:** Quick acting agents

**12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used).

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The projectile can only be used once.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

<b>16. Cost:</b>	SGA-110 CN Ferret	\$5.00 each (minimum of 5)	(Code 170017)
	SGR-100 CS Ferret	\$5.00 each (minimum of 5)	(Code 170013)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM FAMILY OF RIOT CARTRIDGES (CN or CS)

**3. Photograph/Description:** The 37 mm Family of Riot Cartridges provide for long range delivery of CN or CS.

The 560CS and 206CN models deliver 24 grams of agent out to 137 meters and emit agent for 25 seconds.

The 570CS and 219CN models deliver 24 grams of CN or CS out to 64 meters and emit agent for 25 seconds.

The 561CS and 207CN deliver 24 grams of agent out to 137 meters and emit agent for 30 seconds.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd and individual dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** 1 ½ inch diameter

b. **Weight:** 560CS and 206CN weigh 220 grams (24 grams of CS/CN)  
570CS and 219CN weigh 220 grams (24 grams of CS/CN)  
561CS and 207CN weigh 185 grams (24 grams of CS/CN)

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** Approximately 30 minutes after the agents are dispersed. The 560CS/206CN (long range) and the 570CS/216CN models discharge chemical agent for 25 ± 10 seconds. The 561CS/207CN model discharges chemical agent for 30 ± 10 seconds.

d. **Range:** 560CS and 206CN range 137 meters



570CS and 219CN range 64 meters  
561CS and 207CN range 137 meters

**10. Delivery Means:** 37/38 mm tear gas gun

**11. Operational Strengths:** Provides standoff from the target and contains quick acting agents

**12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used). Heavy clothing, shields, trees, and dense shrubs are effective countermeasures for the projectile impacts.

**b. Weather, Environment Limitations:**High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Inc. Division  
160 Benmont Avenue  
Bennington, Vermont 05201  
(800) 639-4530  
(800 442-3823 fax

**16. Cost:**

560CS (long range)	\$16.22	(Code 105016)
206CN (long range)	\$18.00	(Code 105015)
570CS (short range)	\$16.00	(Code 105018)
219CN (short range)	\$18.00	(Code 105017)
561CS (long range)	\$16.50	(Code 106035E)
207CN (long range)	\$16.50	

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM FEDERAL FLITE-RITE (CN or CS)

**3. Photograph/Description:** The Flite-Rite projectile carries 25 grams of CS or CN. The round is accurate up to 68 meters and will penetrate 19 mm of plywood at 45 meters. It will penetrate most types of windows at 68 meters. CS or CN discharge time is approximately 30 seconds. This round is intended for barricade situations where no hostages are present.

Two models are available: 530 CS and 230 CN

**4. History/Background:**

**5. Potential Targets/Applications:** Personnel, barricaded individuals without hostages

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** 1½ inch diameter

**b. Weight:** 280 grams (total), 25 grams of CS/CN

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 2 to 30 minutes

**d. Range:** At 45 meters, the round can penetrate 19 mm thick plywood. At 68 meters, the round can penetrate most types of windows.

**10. Delivery Means:** 37 mm gas gun

**11. Operational Strengths:** Provides stand-off for the user. Quick acting agents.

## 12. Operational Limitations

a. **Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used).

b. **Weather, Environment Limitations:**High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target. High winds may affect the accuracy of the round.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

## 13. Requirements Documentation: None

## 14. System Developer:

## 15. Manufacturer/Contractor

a. **Government:**

b. **Manufacturer:** Mace Security International  
Federal Laboratories Inc. Division  
160 Benmont Avenue  
Bennington, Vermont 05201  
(800) 639-4530  
(800 442-3823 fax

16. Cost:	230 CN Flite-Rite Projectile	\$35.00	(Code 106032)
	530 CS Flite-Rite Projectile	\$35.00	(Code 106030)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37/38 MM FERRET<sup>®</sup> LIQUID AGENT BARRICADE-PENETRATING CARTRIDGE (CN or CS)

**3. Photograph/Description:** This round is designed to release CS or CN into barricaded enclosures or vehicles. The round is fired from a 37/38 mm gas gun and can penetrate most common materials at safe stand-off distances. It can penetrate a car windshield at 100 feet, 3/4 inch plywood at 75 feet, 1/4 inch plate glass at 200 feet, a hollow-core door at 175 feet, and a double-panel storm window with screen at 200 feet. The round releases 25 cubic centimeters of chemical agent in aerosol form, and this amount of chemical agent can disable subjects in a 4,500 cubic foot enclosure (20 foot by 23 foot by 10 foot room). There is no fire potential, and since the round disintegrates while penetrating, there is little chance of secondary penetration.

**4. History/Background:**

**5. Potential Targets/Applications:** Barricade situations.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. Size: 37/38 mm round
- b. Weight:
- c. Power Requirements: None.

**9. Performance Characteristics**

- a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:** It can penetrate a car windshield at 100 feet, 3/4 inch plywood at 75 feet, 1/4 inch plate glass at 200 feet, a hollow-core door at 175 feet, and a double-panel storm window with screen at 200 feet.

**10. Delivery Means:** Fired from a 37/38 mm gas gun.

**11. Operational Strengths:** Quick acting agents

**12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used).

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The projectile can only be used once.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

<b>16. Cost:</b>	SGA-310 CN Ferret	\$16.40	(Code 170019)
	SGA-300 CS Ferret	\$15.80	(Code 170018)

**ENDFIELD**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM MUZZLE DISPERSION CARTRIDGE (CN or CS)

**3. Photograph/Description:** The 37 mm Muzzle Dispersion Cartridge provides instantaneous dispersion of CN or CS at short ranges. The 501CS disperses 18 grams of CS at 25 to 35 feet. The 203CN disperses 18 grams of CN at 25 to 35 feet.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowds

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** 198 mm long, 37 mm diameter

**b. Weight:** 501CS weighs 185 grams (18 grams of CS)  
203CN weighs 185 grams (18 grams of CN)

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Instant to a few seconds

**c. Duration of Effect:** Tens of minutes for the CN and CS

**d. Range:** 25 to 35 feet (9 meters)

**10. Delivery Means:** 37/38 mm gas gun

**11. Operational Strengths:** Provides instantaneous CN or CS dispersion

**12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are used (eyes are still exposed if wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the

effectiveness and delivery of the CN and CS.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

At close ranges, the CN and CS dosage may be dangerously high. Operators must use gas mask due to short range of this cartridge.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Inc. Division  
160 Benmont Avenue  
Bennington, Vermont 05201  
(800) 639-4530  
(800 442-3823 fax

<b>16. Cost:</b>	203CN Muzzle Dispersion Cartridge	\$17.00	(Code 105001B)
	501CS Muzzle Dispersion Cartridge	\$16.00	(Code 105003B)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM SKAT SHELL (CN or CS)

**3. Photograph/Description:** The Skat Shell launches five or ten small CN or CS gas grenades simultaneously. The gas grenades are intended to hit the ground in front of the crowd. This disperses the gas grenades through the front portion of the crowd for effective gas dispersion. Gas is expelled from the grenades for approximately 20 to 25 seconds. The Skat Shell exists in two models. The 265-5CN model emits CN. The 565-5CS model emits CS. Both models can be fired from the 37 mm gas gun and the L6.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** 1 ½ inch diameter

b. **Weight:** 565-5CS and 265-5CN weigh 211 grams (30 grams of CS/CN)

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** Approximately 30 minutes.

d. **Range:** 565-5CS and 265-5CN have range of 100 yards

**10. Delivery Means:** 265-5CN and 565-5CS models projected by 37 mm gas gun or L6.

**11. Operational Strengths:** Provides standoff from the target and contains quick acting agents

**12. Operational Limitations**



- a. **Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used).
- b. **Weather, Environment Limitations:**High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Inc. Division  
160 Benmont Avenue  
Bennington, Vermont 05201  
(800) 639-4530  
(800 442-3823 fax

<b>16. Cost:</b>	265-5CN Skat Shell, 5 cup	\$25.00	(Code 105011)
	565-5CS Skat Shell, 5 cup	\$24.15	(Code 105012)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 12 HEAVY BARRICADE PROJECTILE (CN or CS)

**3. Photograph/Description:** Fin-stabilized rubber projectile that is loaded in a 37 mm shell casing. The projectile burns its payload after a one second delay.

**4. History/Background:**

**5. Potential Targets/Applications:** Barricade situations

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The projectile can deliver CS or CN. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** 10 inch length x 1.5 inch caliber (37/38 mm)

b. **Weight:** 11.6 ounces (0.2 ounces of CN/CS)

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** Approximately 30 minutes.

d. **Range:** 100 yards (maximum effective range)  
300 yards (maximum range)

**10. Delivery Means:** Grenade is fired from a 37 mm gas gun.

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**

a. **Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags

are use (eyes are still exposed if wet rags are used).

**b. Weather, Environment Limitations:**High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 12CN Heavy Barricade Penetrating Round	\$27.84	(Code 1151)
	No. 12CS Heavy Barricade Penetrating Round	\$27.84	(Code 1152)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 14 LIQUID FILLED BARRICADE PROJECTILE (CN, CS, AND OC)

**3. Photograph/Description:** No. 14 is a spin stabilized projectile which is filled with liquid CN, CS, or OC. Also, a red dye is added to aid in shot placement. This projectile has no fire potential because it disperses chemical agents in mist form. The projectile is loaded in a 37/38 mm shell.

**4. History/Background:**

**5. Potential Targets/Applications:** Barricaded hostage situations

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The projectile can deliver CS, CN, or OC. Incapacitation using CS, CN, or OC is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** Length = 6.3 inches, caliber = 1.5 inches (37/38 mm)

**b. Weight:** 6.3 ounces (1.1 ounce of CN, or 0.6 ounces of CS, or 2.06 ounces of OC)

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes.

**d. Range:** 200 yards

**10. Delivery Means:** Projectile is fired from 37/38 mm gas guns.

**11. Operational Strengths:** Quick acting agents, no fire start potential.

**12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags

are use (eyes are still exposed if wet rags are used).

**b. Weather, Environment Limitations:**High winds and/or heavy rain may decrease the effectiveness and delivery of the CN, CS, and OC. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 14CN Liquid Barricade (Red Dye)-CN	\$13.12 (Code 1161)
	No. 14CS Liquid Barricade (Red Dye)-CS	\$12.00 (Code 1162)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 17 LONG AND SHORT RANGE PROJECTILE (CN OR CS)

**3. Photograph/Description:** No. 17 has an aluminum-cased payload and is in a 37 mm shell. It is intended for outdoor situations where large amounts of CS and CN need to be dispersed while maintaining safe stand-off distances. The chemical agents are dispersed through burning, and therefore this round has fire start potential.

Available products include:

- CN 17LR (long range)
- CS 17LR (long range)
- CN 17SR (short range)
- CS 17SR (short range)

**4. History/Background:**

**5. Potential Targets/Applications:** Outdoor crowd control and mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The projectile can deliver CS or CN. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. **Size:** 5.5 inch length by 1.5 inch caliber (37/38 mm)
- b. **Weight:** 7.9 ounces (0.9 ounces of CN or CS)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness. The chemical agent is discharged from 20 to 30 seconds.
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:**
  - CN 17LR and CS 17LR -maximum effective range is 150 yards
  - CN 17SR and CS 17SR -maximum effective range is 75 yards

10. **Delivery Means:** The irritant is encased in a 37/38 mm shell.

11. **Operational Strengths:** Quick acting agents, safe stand-off distances.

12. **Operational Limitations**

a. **Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used).

b. **Weather, Environment Limitations:**High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target. High winds and/or heavy rain may decrease the accuracy of the round.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

13. **Requirements Documentation:** None

14. **System Developer:**

15. **Manufacturer/Contractor**

a. **Government:**

b. **Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

16. Cost:	<u>Long Range</u>		
	LR No.17CN	\$12.64	(Code 1181)
	LR No.17CS	\$12.64	(Code 1182)
	<u>Short Range</u>		
	SR No. 17CN	\$12.64	(Code 2001)
	SR No. 17CS	\$12.64	(Code 2002)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 19 MULTIPLE PROJECTILE (CN OR CS)

**3. Photograph/Description:** No. 19 was designed for outdoor situations where a wide dispersal of chemical agent is desired. The payload has 5 sub-munitions which separate when fired.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The grenade can deliver CS or CN. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** 8 inch length by 1.5 inch caliber (37/38 mm)

**b. Weight:** 11.8 ounces (1.2 ounces of CS or CN)

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes.

**d. Range:** 60 to 80 yards

**10. Delivery Means:** Grenade is fired from a 37/38 mm gas gun. The CS or CN discharges for 20 to 30 seconds.

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags



are use (eyes are still exposed if wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 19CN 5 Submunition Round-CN	\$19.84	(Code 1171)
	No. 19CS 5 Submunition Round-CS	\$19.04	(Code 1172)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 21 MUZZLE BLAST DISPERSION (CN OR CS)

**3. Photograph/Description:** No. 21 was designed to disperse CS or CN at close range by employing the muzzle blast to disperse the chemical agent in powder form. A gas mask should be worn when firing this round.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

The round can deliver CS or CN. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. **Size:** Length = 8 inch, caliber = 1.5 inch (37/38 mm)
- b. **Weight:** 9.6 ounces, (1.7 ounces of CS or CN)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:** 30 feet

**10. Delivery Means:** The round is fired from a 37 mm gas gun.

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**

- a. **Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags

are use (eyes are still exposed if wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

At close ranges, the CN and CS dosage may be dangerously high. One shot round. A gas mask should be worn when firing this round.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. T21CN Muzzle Blast Dispersion-CN	\$14.72	(Code 1141)
	No. T21CS Muzzle Blast Dispersion-CS	\$12.64	(Code 1142)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37/40 MM PSI UNIVERSAL LESS-LETHAL AMMUNITION (CN or CS)

**3. Photograph/Description:** This ammunition is available in a variety of configurations. Cartridges can be loaded with varying strengths of propelling charge, single and multiple Stun-Bags, dye markers, plastic pellets, wooden blocks, or tear gas (CN/CS). An empty cartridge is available which is suitable for re-loading. The payloads are propelled by a standard 0.38 cartridge which is inserted into the base of the Universal cartridge case. The ammunition can be fired by the PSI Stun-Gun weapon and the military M79 and M203 grenade launchers.

**4. History/Background:**

**5. Potential Targets/Applications:** Personnel dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation is achieved through ballistic impact or through tear gas (CN/CS), depending on the payload used.

**8. Physical Data**

- a. **Size:** Single Stun-Bag is 76 mm in diameter, Double Stun-Bags are 64 mm in diameter, triple Stun-Bags are 50 mm in diameter
- b. **Weight:** Plastic pellet round contains 45 grams of plastic pellets
- c. **Power Requirements:** Utilizes 0.38 cartridge

**9. Performance Characteristics**

- a. **Effect on Target:** Knock down personnel, incapacitate with tear gas, or mark with a dye. The tear gas causes a burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Instantaneous to a few seconds
- c. **Duration of Effect:** A few seconds to a few minutes for ballistic, to 20-30 minutes for tear gas, to hours to days for the dye markers
- d. **Range:** 15 meters to 90 meters

**10. Delivery Means:** PSI Stun-Gun weapon, M79 and M203 grenade launchers.

**11. Operational Strengths:** Provides a variety of limited effects capabilities

**12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used). Heavy clothing, shields, trees, and dense shrubs are effective countermeasures for the Stun-Bag projectile impacts.

**b. Weather, Environment Limitations:**High wind conditions may reduce accuracy of Stun-Bag, and may disperse tear gas. Extreme hot/cold conditions may affect Stun-Bag energy. That is extreme heat may increase the impact velocity and, conversely, extreme cold may decrease the impact velocity for a given range.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** The dischargers are single shot devices. Therefore, multi-shot/recycle time will be dependant on the operators ability to reload the discharger in a timely fashion.

At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** LEWCA: Less Lethal Weapons of America  
1709F Airline Highway  
Suite 125  
Hollister, CA 95023

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 40 MM FERRET BARRICADE PENETRATING CARTRIDGE (CN or CS)

**3. Photograph/Description:** The 40 mm Ferret penetrates the barrier and disperses CN or CS in aerosol form behind the barrier. The Ferret will penetrate 25 mm thick pine board at 10 meters, an automobile windshield at 50 meters, and a residential hollow core door at 100 meters. The projectile breaks on impact or during penetration. This prevents excessive secondary penetration. The projectile is fin stabilized and can be fired from a rifled 40 mm grenade launcher (M79 or M203). The projectile contains 25 cc of CN or CS.

**4. History/Background:**

**5. Potential Targets/Applications:** Individual or group in a barricade situation

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** 125 mm long, 40 mm diameter

b. **Weight:** 120 grams (0.26 lbs) total

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** Approximately 30 minutes.

d. **Range:** The Ferret will penetrate 25 mm thick pine board at 10 meters, an automobile windshield at 50 meters, and a residential hollow core door at 100 meters.

**10. Delivery Means:** 40 mm gas gun

**11. Operational Strengths:** Provides standoff from the target, Quick acting agents

## **12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used).

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the accuracy, especially at longer ranges.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

## **13. Requirements Documentation: None**

## **14. System Developer:**

## **15. Manufacturer/Contractor**

### **a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

<b>16. Cost:</b>	SGA-410 CN Ferret	\$17.80	(Code 170032)
	SGA-400 CS Ferret	\$15.80	(Code 170031)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available (limited inventorylimited inventory)

**2. Weapon Name:** 64 MM RING AIRFOIL GRENADE (RAG), (CS and kinetic energy projectile)

**3. Photograph/Description:** The Sting RAG is a kinetic energy projectile which is intended to inflict pain with minimal possibility for serious injury. The Soft RAG is similar to the Sting RAG except that it contains a small amount of CS powder. The powder is released upon impact with the target by a structural failure of a soft band which is located on the circumference of the ring projectile. The ring projectile is constructed from a soft, rubber-like material which has an airfoil cross section. A strip of this rubbery material is rolled into a ring. The ring projectiles are launched at 170 to 200 ft/sec with a rotation rate of 5000 revolutions per minute for gyroscopic stability. The ring projectiles require the use of a M234 launcher. The launcher is attached to a standard M16A1 rifle. The M755 blank cartridge serves as the propelling charge for the ring projectile. Modifications to the M234 launcher are required for use on the M16 rifle other than the M16A1.

**4. History/Background:**

**5. Potential Targets/Applications:** Individuals and crowds

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Incapacitation is achieved through the pain from the ballistic impact (Sting RAG) and through a combined effect of the impact pain and through tearing and irritation via CS (Soft RAG).

**8. Physical Data**

a. Size:

b. Weight: Ring projectile weights 35 grams total

c. Power Requirements: M755 blank cartridge

**9. Performance Characteristics**

a. **Effect on Target:** Pain and discomfort due to the projectile impact. The CS causes burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Instant

c. **Duration of Effect:** Seconds to minutes for the impact along. Tens of minutes for impact when combined with CS.

d. **Range:** Individuals up to 40 meters, small crowds up to 60 meters

**10. Delivery Means:** M234 launcher, M755 blank cartridge, and M16 Rifle are required



**11. Operational Strengths:** Provides standoff from the target

**12. Operational Limitations**

**a. Countermeasures:** Effectiveness of agents will be reduced if a gas mask is worn or wet rags are use (eyes are still exposed if wet rags are used). Heavy clothing, shields, trees, and dense shrubs are effective countermeasures for the projectile impacts.

**b. Weather, Environment Limitations:** High winds may effect the accuracy of the projectile, especially at longer ranges. High winds and/or heavy rain may decrease the effectiveness and delivery of the CS.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At very close range, the CS may affect the operator.

**13. Requirements Documentation:** None

**14. System Developer:** Chemical Research and Development Center  
Aberdeen Proving Ground, MD

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** CS MUZZLE BLAST (37MM/38MM)

**3. Photograph/Description:** This round blasts a cloud of CS tear gas to a distance of 10 meters. This round can be used in for riot control or crowd dispersal.

**4. History/Background:**

**5. Potential Targets/Applications:** Mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Incapacitation using CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** 1 1/2 inch diameter, 4 5/8 inches long

b. **Weight:** 4 ounces

c. **Power Requirements:** Fired from a 37mm/38mm gas gun.

**9. Performance Characteristics**

a. **Effect on Target:** The CS gas causes a burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduced the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** The CS tear gas effect lasts approximately 30 minutes

d. **Range:** 10 meters

**10. Delivery Means:** Fired from a 37mm/38mm gas gun.

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Gas mask or wet rags (wet rags leave eyes unprotected)

b. **Weather, Environment Limitations:** Wind may effect the dispersal of the CS tear gas. The user should be upwind when firing this round.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
This is a one shot round.

**13. Requirements Documentation: None**

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$600.00 per case (24 rounds per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** MUZZLE BLAST CS (12 GAUGE)

**3. Photograph/Description:** This round blasts a cloud of CS tear gas and is to be used for short range situation. This round can be used in for riot control or crowd dispersal.

**4. History/Background:**

**5. Potential Targets/Applications:** Mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation using CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** 12 gauge, 2 3/4 inches long

b. **Weight:** 1/2 ounces

c. **Power Requirements:** Fired from a 12 gauge shotgun.

**9. Performance Characteristics**

a. **Effect on Target:** The CS gas causes a burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduced the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** The CS tear gas effect lasts approximately 30 minutes

d. **Range:** Short range round

**10. Delivery Means:** Fired from a 12 gauge shotgun.

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Gas mask or wet rags (wet rags leave the eyes unprotected)

b. **Weather, Environment Limitations:** Wind may effect the dispersal of the CS tear gas. The user should be upwind when firing this round.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
This is a one shot round.

**13. Requirements Documentation: None**

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$6.00 each  
\$275.00 per case (50 rounds per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** BURSTING CS TEAR GAS (12 GAUGE)

**3. Photograph/Description:** This round fires a projectile to a distance of 75 meters which then bursts into a small cloud of CS tear gas. This round is good for crowd control. It also allows the user to maintain a safe stand-off distance from the target.

**4. History/Background:**

**5. Potential Targets/Applications:** Mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation using CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** 12 gauge, 2 3/4 inches long

**b. Weight:** 1/2 -1 ounce

**c. Power Requirements:** Fired from a 12 gauge shotgun.

**9. Performance Characteristics**

**a. Effect on Target:** The CS gas causes a burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduced the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** The CS tear gas effect lasts approximately 30 minutes

**d. Range:** The round can be fired to a distance of 75 meters.

**10. Delivery Means:** Fired from a 12 gauge shotgun.

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:** Gas mask or wet rags (wet rags leave the eyes unprotected)

**b. Weather, Environment Limitations:** Wind may effect the dispersal of the CS tear gas. The

user should be upwind when firing this round.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
This is a one shot round.

**13. Requirements Documentation: None**

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$6.50 each  
\$300.00 per case (50 rounds per case)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** CS, CN, MACE SPRAYS

**3. Photograph/Description:**

Contact with CS, CN, or Mace induces an almost immediate burning sensation of the eyes, tearing, involuntary closing of the eyes, coughing, difficulty in breathing, chest tightness, and burning sensation on exposed skin. Nausea and vomiting may occur if an individual is exposed to large concentrations or if the agent is ingested. Time required for the maximum effect of CS may be 20 to 60 seconds. Because CS, CN, and Mace are irritants they may not be effective against an individual whose pain threshold has been raised due to drugs or endorphins. This is due to the fact that chemical irritants produce pain by activating receptor cells at the point of contact and transmitting the pain signal via neural transmitters to the brain. If the neural signals are blocked or diminished (by drugs or endorphins), then the individual does not sense the same level of pain as he or she normally would. Also, these chemicals have little to no effect on animals due to their not having tear ducts.

Products containing CN and CS have caused respiratory failure in some cases. Also, these chemicals have caused permanent skin de-pigmentation, dermatitis, burns requiring medical treatment, and permanent eye injuries.

Cross-contamination between subjects and police is purportedly common with CN. This can probably be attributed to the inability to decontaminate the microscopic particles of CN from a subject or enclosed space.

CN is considered useful at temperatures above 50° F. It is considered most effective above 72° F. CS is effective over a wider temperature range.

**Mace Security International**

1. MK-III, Pepper-Fortified MACE®, CN/OC, 1.76 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, contains an ultraviolet marking dye, (code 3000)
2. MK-IVB, Pepper-Fortified MACE®, CN/OC, 3.35 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts, contains an ultraviolet marking dye, (code 4000)
3. MK-VI, Pepper-Fortified MACE®, CN/OC, 0.63 ounces utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, contains an ultraviolet marking dye, (code 6000)
4. MK-VII, Pepper-Fortified MACE®, CN/OC, 0.39 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 5 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, contains an ultraviolet marking dye, (code 7000)
5. MK-VIII, Pepper-Fortified MACE®, CN/OC, 1.09 ounces, utilizes a Ballistic Stream nozzle with a range of 6-12 feet, provides approximately 14 one-second bursts, housed in a baton dispenser, reload available, contains an ultraviolet marking dye, (code 8000)
6. MK-IX, Pepper-Fortified MACE®, CN/OC, 18.3 ounces, utilizes a Magnum Fogger nozzle with a range of 15-25 feet, provides approximately 25 one-second bursts, equipped with a highly directional pistol handle dispenser, contains an ultraviolet marking dye, (code 9000)
7. MK-X, Pepper-Fortified MACE®, CN/OC, 0.60 ounce, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 10 one-second bursts, equipped with a highly directional pistol handle dispenser contains an ultraviolet marking dye, (code A000)



8. MK-III, Pepper-Fortified MACE®, CS/OC, 1.76 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, contains an ultraviolet marking dye, (code 3030)
9. MK-IVB, Pepper-Fortified MACE®, CS/OC, 3.35 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts, contains an ultraviolet marking dye, (code 4030)
10. MK-VI, Pepper-Fortified MACE®, CS/OC, 0.63 ounce, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, contains an ultraviolet marking dye, (code 6030)
11. MK-VIII, Pepper-Fortified MACE®, CS/OC, 1.09 ounces, utilizes a Ballistic Stream nozzle with a range of 6-12 feet, provides approximately 14 one-second bursts, housed in a baton dispenser, reload available, contains an ultraviolet marking dye, (code 8030)
12. MK-IX, Pepper-Fortified MACE®, CS/OC, 18.3 ounces, utilizes a Magnum Fogger nozzle with a range of 15-25 feet, provides approximately 25 one-second bursts, equipped with a highly directional pistol handle dispenser, contains an ultraviolet marking dye
13. MK-III, Original MACE®, CN, 1.76 ounces, utilizes a stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, contains an ultraviolet marking dye
14. MK-IVB, Original MACE®, CN, 3.3 ounces, utilizes a stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts, contains an ultraviolet marking dye
15. MK-V, Original MACE®, CN, 1.18 ounces, utilizes a stream nozzle with a range of 6-12 feet, provides approximately 37 one-second bursts, contained inside a protective housing with a pull-trigger mechanism, contains an ultraviolet marking dye, reloads available
16. MK-VI, Original MACE®, CN, 0.63 ounce, utilizes a stream nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, contains an ultraviolet marking dye
17. MK-VII, Original MACE®, CN, 0.39 ounce, utilizes a stream nozzle with a range of 8-12 feet, provides approximately 5 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, contains an ultraviolet marking dye
18. MK-VIII, Original MACE®, CN, 1.09 ounces, utilizes a stream nozzle with a range of 6-12 feet, provides approximately 14 one-second bursts, housed in a baton dispenser with available reloads, contains an ultraviolet marking dye
19. MK-IX, Original MACE®, CN, 18.3 ounces, utilizes a Fogger nozzle with a range of 15-25 feet, provides approximately 25 one-second bursts, equipped with a highly directional pistol handle dispenser, contains an ultraviolet marking dye.
20. MK-III, Original MACE®, CS, 1.76 ounces, utilizes a stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, contains an ultraviolet marking dye
21. MK-IVB, Original MACE®, CS, 3.3 ounces, utilizes a stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts, contains an ultraviolet marking dye
22. MK-VI, Original MACE®, CS, 0.63 ounce, utilizes a stream nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, contains an ultraviolet marking dye.
23. MK-VIII, Original MACE®, CS, 1.09 ounces, utilizes a stream nozzle with a range of 6-12 feet, provides approximately 14 one-second bursts, housed in a baton dispenser with available reloads, contains an ultraviolet marking dye
24. MK-IX, Original MACE®, CS, 18.3 ounces, utilizes a Fogger nozzle with a range of 15-25 feet, provides approximately 25 one-second bursts, equipped with a highly directional pistol handle dispenser, contains an ultraviolet marking dye

### **Aerko International**

1. CLEAR-OUT® Grenade, Model A825, 1% CS and 1% OC, 6 ounces, discharges complete contents in approximately 28 seconds after activation, gas expands to 23,000 cubic feet about 1 minute after activation
2. CLEAR-OUT® Keyholer, Model KHA848, 1% CS and 1% OC, 6 ounces, equipped with a 6 foot surgical tubing capable of delivering contents through small entry ports, contains an ultra violet marking dye
3. CLEAR-OUT® Auto Ejector, Model AEA841, 1% CS and 1% OC, 73 grams, equipped with a short length of flexible tubing attached to a 4 ½ inch stainless steel needle, contains an ultra violet marking dye
4. Deep FREEZE®, 1% CS and 1% OC, 15.7 ounces, disperses a moderate volume of irritant and ultra violet marking dye in a fan shaped pattern over a range normally required in tactical operation
5. FREEZE® Plus Concentrate, 1% CS and 0.25% OC, 1 quart
6. FREEZE® Plus Concentrate, 1% CS and 0.25% OC, 1 gallon
7. FREEZE® Plus P Concentrate, 1% CS and 1% OC, 1 quart
8. FREEZE® Plus P Concentrate, 1% CS and 1% OC, 1 gallon
9. FREEZE®, 1% CS, ½ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
10. FREEZE® Plus, 1% CS and 0.25% OC, ½ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
11. FREEZE® Plus P, 1% CS and 1% OC, ½ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
12. FREEZE®, 1% CS, ¾ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
13. FREEZE® Plus, 1% CS and 0.25% OC, ¾ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available .
14. FREEZE® Plus P, 1% CS and 1% OC, ¾ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
15. FREEZE®, 1% CS, 2 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
16. FREEZE® Plus, 1% CS and 0.25% OC, 2 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
17. FREEZE® Plus P, 1% CS and 1% OC, 2 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves also are available
18. FREEZE®, 1% CS, 4 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
19. FREEZE® Plus, 1% CS and 0.25% OC, 4 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available
20. FREEZE® Plus P, 1% CS and 1% OC, 4 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available

### **Security Equipment Corporation**

(Sabre products are rated at 2,000,000 SHU)

1. Sabre, 5% OC and 2% CS, ½ ounce, projects a ballistic stream of irritant out to a range of 8 feet, contains approximately 15-18 seconds of discharge, contains an ultraviolet dye
2. Sabre, 5% OC and 2% CS, ¾ ounce, projects a ballistic stream of irritant out to a range of 8 feet, contains approximately 30-33 seconds of discharge, contains an ultraviolet dye
3. Sabre, 5% OC and 2% CS, 1.5 ounces, projects a ballistic stream of irritant out to a range of 10 feet, contains approximately 36-39 seconds of discharge, contains an ultraviolet dye
4. Sabre Lady Magnum, 5% OC, and 2% CS, 3 ounces, projects a ballistic stream of irritant out to a

range of 10 feet, contains an ultraviolet dye

5. Sabre, 5% OC and 2% CS, 4 ounces, projects a ballistic stream of irritant out to a range of 12 feet, contains approximately 40-45 seconds of discharge, contains an ultraviolet dye

#### **4. History/Background:**

5. **Potential Targets/Applications:** Humans and animals. Individual and/or crowd dispersal

6. **Primary Users:** Civilian, police, military individuals

#### **7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

#### **8. Physical Data**

- a. Size: See Section 3
- b. Weight: See Section 3
- c. Power Requirements: None

#### **9. Performance Characteristics**

a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing,, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested, reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** Approximately 30 minutes

d. **Range:** Varies from 10 feet to 30 feet, see Section 3

10. **Delivery Means:** Stream of liquid or aerosol spray delivers the agents.

11. **Operational Strengths:** Quick acting agents

#### **12. Operational Limitations**

a. **Countermeasures:** CS, CN, and Mace effectiveness are significantly reduced by a gas mask and wet rags. The agent will still irritate exposed skin and unprotected eyes.

b. **Weather, Environment Limitations:** CS, CN and Mace are susceptible to wind patterns, operator may be exposed to the agent if he is downwind from the target.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At close ranges, the CN and CS dosage may be dangerously high.

#### **13. Requirements Documentation:**

#### **14. System Developer:**

15. Manufacturer/Contractor

- a. Government:  
b. Manufacturer:

CS, CN, & Mace Suppliers		
Supplier	Product Name	Cost
Mace Security International 160 Benmont Ave. Bennington, Vermont 05201 (800) 639-4530 (802) 447-7713 (800) 545-6223 fax	1. MK-III, Pepper-Fortified MACE°, CN/OC, 1.76 ounces (code 3000)	1. \$11.25
	2. MK-IVB, Pepper-Fortified MACE°, CN/OC, 3.35 ounces, (code 4000)	2. \$13.50
	3. MK-VI, Pepper-Fortified MACE°, CN/OC, 0.63 ounces (code 6000)	3. \$10.60
	4. MK-VII, Pepper-Fortified MACE°, CN/OC, 0.39 ounces, (code 7000)	4. \$9.45
	5. MK-VIII, Pepper-Fortified MACE°, CN/OC, 1.09 ounces, (code 8000)	5. \$45.00
	6. MK-IX, Pepper-Fortified MACE°, CN/OC, 18.34 ounces, (code 9000)	6. \$35.00
	7. MK-X, Pepper-Fortified MACE°, CN/OC, 0.60 ounces, (code A000)	7. \$10.50
	8. MK-III, Pepper-Fortified MACE°, CS/OC, 1.76 ounces (code 3030)	8. \$10.75
	9. MK-IVB, Pepper-Fortified MACE°, CS/OC, 3.35 ounces, (code 4030)	9.
	10. MK-VI, Pepper-Fortified MACE°, CS/OC, 0.63 ounces (code 6030)	10.
	11. MK-VIII, Pepper-Fortified MACE°, CS/OC, 1.09 ounces, (code 8030)	11.
	12. MK-IX, Pepper-Fortified MACE°, CS/OC, 18.34 ounces, (code 9030)	12.
	13. MK-III, Mace°, CN, 1.76 ounces, (code 3010)	13. \$10.25
	14. MK-IVB, Mace°, CN, 3.35 ounces, (code 4010)	14. \$12.50
	15. MK-V, Mace°, CN, 1.18 ounces, (code 5010)	15. \$15.75
	16. MK-VI, Mace°, CN, 0.63 ounces, (code 6010)	16. \$9.75
	17. MK-VII, Mace°, CN, 0.39 ounces, (code 7010)	17.
	18. MK-VIII, Mace°, CN, 1.09 ounces, (code 8010)	18.
	19. MK-IX, Mace°, CN, 18.34 ounces, (code 9010)	19. \$31.00
	20. MK-III, Mace°, CS, 1.76 ounces, (code 3020)	20. \$10.25
	21. MK-IVB, Mace°, CS, 3.35 ounces, (code 4020)	21. \$12.50
	22. MK-VI, Mace°, CS, 0.63 ounces, (code 6020)	22. \$9.75
	23. MK-VIII, Mace°, CS, 1.09 ounces, (code 8020)	23. \$41.00
	24. MK-IX, Mace°, CS, 18.34 ounces, (code 9020)	24. \$31.00

CS, CN, & Mace Suppliers		
Supplier	Product Name	Cost
Aerko International 3410 N.E. 5th Ave. Fort Lauderdale, FL 33334 (305) 565-8475 (305) 565-8499 fax  (mailing address) P.O. Box 23884 Fort Lauderdale, FL 33307	1. CLEAR-OUT® Grenade, Model A825, 1% CS and 1% OC, 6 ounces,	1. \$11.95
	2. CLEAR-OUT® Keyholer, Model KHA848, 1% CS and 1% OC, 6 ounces,	\$105.35 (case of 12)
	3. CLEAR-OUT® Auto Ejector, Model AEA841, 1% CS and 1% OC, 73 grams,	2. \$14.45
	4. Deep FREEZE®, 1% CS and 1% OC, 15.7 ounces,	3. \$13.20
	5. FREEZE® Plus Concentrate, 1% CS and 0.25% OC, 1 quart	4. \$15.80
	6. FREEZE® Plus Concentrate, 1% CS and 0.25% OC, 1 gallon	5. \$26.15
	7. FREEZE® Plus P Concentrate, 1% CS and 1% OC, 1 quart	6. \$91.50
	8. FREEZE® Plus P Concentrate, 1% CS and 1% OC, 1 gallon	7. \$31.60
	9. FREEZE®, 1% CS, ½ ounce,	8. \$96.95
	10. FREEZE® Plus, 1% CS and 0.25% OC, ½ ounce,	9. \$5.65
	11. FREEZE® Plus P, 1% CS and 1% OC, ½ ounce,	10. \$6.25
	12. FREEZE®, 1% CS, ¾ ounce,	11. \$6.60
	13. FREEZE® Plus, 1% CS and 0.25% OC, ¾ ounce,	12. \$6.55
	14. FREEZE® Plus P, 1% CS and 1% OC, ¾ ounce,	13. \$7.30
	15. FREEZE®, 1% CS, 2 ounces,	14. \$7.65
	16. FREEZE® Plus, 1% CS and 0.25% OC, 2 ounces,	15. \$9.95
	17. FREEZE® Plus P, 1% CS and 1% OC, 2 ounces,	16. \$10.35
	18. FREEZE®, 1% CS, 4 ounces,	17. \$10.85
	19. FREEZE® Plus, 1% CS and 0.25% OC, 4 ounces,	18. \$11.25
	20. FREEZE® Plus P, 1% CS and 1% OC, 4 ounces,	19. \$12.35 20. \$12.85
Security Equipment Corporation 330 Sun Valley Circle Sun Valley Industrial Park Fenton, MO 63026 (314) 343-0200 (800) 325-9568 (314) 343-1318 fax	1. Sabre, 5% OC and 2% CS, ½ ounce, (code KR-14)	1. \$4.17
	2. Sabre, 5% OC and 2% CS, ¾ ounce, (code P-22)	2. \$4.17
	3. Sabre, 5% OC and 2% CS, 1.5 ounces, (code M-35)	3. \$4.77
	4. Sabre Lady Magnum, 5% OC, and 2% CS, 3 ounces (code LM-80)	4. \$7.75
	5. Sabre, 5% OC and 2% CS, 4 ounces, (code M-120)	5. \$5.97
		Note: prices are quoted for a minimum of 24 units purchased

16. Cost: See above table

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M450 MULTIFLASH<sup>®</sup> DIVERSION / DISTRACTION GRENADE  
M451 MULTIFLASH<sup>®</sup> DIVERSION / DISTRACTION GRENADE

**3. Photograph/Description:** These devices contain seven submunitions which are fuzed to explode over a random 2 to 3 second time intervals after they are ejected from the grenade. The M450 Multiflash<sup>®</sup> submunitions are loaded with Magdex Thunderflash Stun Mix. This mix provides a series of blasts and flashes over a 3 second interval. The M450 can be used to simulate a firefight. The M451 Multi-Starflash grenade blasts, flashes, and produces a shower of white hot sparks.

**4. History/Background:**

**5. Potential Targets/Applications:** Rapid entry situations, crowd dispersal

**6. Primary Users:** Law enforcement and military

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The flashes, blasts, and sparks produce disorientation and confusion.

**8. Physical Data**

**a. Size:** 4.5 inch length, 2 inch diameter

**b. Weight:** 7 ounces

**c. Power Requirements:** None.

**9. Performance Characteristics**

**a. Effect on Target:** Disorientation.

**b. Time to Effect:** Instantaneous.

**c. Duration of Effect:** Seconds to minutes

**d. Range:** Hand-thrown

**10. Delivery Means:** Hand-thrown.

**11. Operational Strengths:** These devices provide a non-lethal means of incapacitating individuals before they can injure themselves or others

**12. Operational Limitations**

**a. Countermeasures:**

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Precision Ordnance Products Inc.  
P. O. Box 80437  
Phoenix, Arizona 85060  
1-800-782-7352  
(602) 840-1151 fax

<b>16. Cost:</b>	M450	\$50.00 each, \$1200.00 for a case of 24
	M451	\$55.00 each, \$1320.00 for a case of 24

ENDFIELD



**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M460 THUNDERSTRIP® STUN MUNITION

**3. Photograph/Description:** The M460 is a device that is used to produce a blast that will stun individuals inside a room or enclosure. The M460 is a thin munition and can be slid under a door. Shocktube/flashtube/nonel is used to detonate the grenade from a safe stand-off distance.

**4. History/Background:**

**5. Potential Targets/Applications:** Rapid entry situation

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
**(technology, science, chemistry, physics involved):**

When the grenade is detonated, the blast and flash stun and disorient the room or enclosure occupants.

**8. Physical Data**

- a. **Size:** 1/8 inch thick, 12 inch long, 3 inch wide
- b. **Weight:** 4.5 ounces
- c. **Power Requirements:** None.

**9. Performance Characteristics**

- a. **Effect on Target:** Stuns room or enclosure occupants
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:** Seconds to minutes
- d. **Range:** 10 feet of shocktube/flashtube/nonel is provided with each grenade.

**10. Delivery Means:** Placed by hand.

**11. Operational Strengths:** Allows users to access locked or windowless rooms with less possibility of injury.

**12. Operational Limitations**

- a. **Countermeasures:**
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Precision Ordnance Products Inc.  
P. O. Box 80437  
Phoenix, Arizona 85060  
1-800-782-7352  
(602) 840-1151 fax

**16. Cost: M460 Thunderstrip**

\$45.00 each, \$1080.00 for a case of 24. **ENDFIELD**

**Latest Revision Date:** October 11, 1995

**1. Status:** Near Term

**2. Weapon Name:** XM 84 NON-LETHAL STUN GRENADE

**3. Photograph/Description:** The XM 84 Non-Lethal Stun Grenade is a non-lethal, explosive device which will generate intense light and sound. It will generate a one million candlepower light flash and a noise level between 170 and 180 decibels at a five foot distance from the device. The intense flash is intended to cause a temporary blindness with no permanent eye injury. The arming mechanism (fuze) will be comprised of a safety pin/pull ring assembly, a safety lever (spoon), a spring loaded striker assembly, and a percussion primer. The fuze/grenade body assembly will remain intact after operation and will produce no fragmentation. Smoke from the device will not interfere with room clearing operations during the initial 2 seconds after operation.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, breaking contact

**6. Primary Users:** Military

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved through flash blinding and auditory stun.

**8. Physical Data**

**a. Size:** 2 inch diameter, 6 inches long

**b. Weight:** 1.6 lbs (736 grams) total weight

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Visual and auditory stun

**b. Time to Effect:** Instant (device has a  $2 \pm 0.2$  seconds delay)

**c. Duration of Effect:** Minutes

**d. Range:** One million candlepower light flash and 170 to 180 decibel sound level is produced at a range of five feet from the device

**10. Delivery Means:** Hand-thrown

**11. Operational Strengths:** Rapidly stuns individuals and groups

**12. Operational Limitations**

**a. Countermeasures:** Hearing protection and dark goggles or glasses (partial countermeasures)

**b. Weather, Environment Limitations:** None

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

At close ranges, the decibel level and flash brightness may cause some temporary damage to hearing and to sight.

**13. Requirements Documentation:** US AMPS OD, dated

**14. System Developer:** PM -Small Arms  
U.S. Army ARDEC,  
Picatinny Arsenal, New Jersey 07806-5000

**15. Manufacturer/Contractor**

**a. Government:** Mr. Alan Li  
(201)724-4042  
PM-Small Arms  
ARDEC

**b. Manufacturer:** Undetermined

**16. Cost:** Undetermined

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 1 FRICTION THUNDERFLASH

**3. Photograph/Description:** This baton type device is used for simulating visual and acoustic effects of exploding ammunition. It is designed to detonate after being thrown at least 10 meters. To detonate this device, the transport closing cap is removed, the match-head igniter is manually struck, the igniter then ignites a safety cord, and the safety cord detonates the thunderflash compound after 5 seconds.

**4. History/Background:**

**5. Potential Targets/Applications:**

**6. Primary Users:**

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Causes temporarily blindness and hearing loss which may result in disorientation

**8. Physical Data**

a. Size:

b. Weight:

c. Power Requirements:

**9. Performance Characteristics**

a. Effect on Target:

b. Time to Effect:

c. Duration of Effect:

d. Range:

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

a. Countermeasures:

b. Weather, Environment Limitations:

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 21 DISTRACTION DEVICE

**3. Photograph/Description:** A canister grenade device which produces approximately 1.5 million candle-power of light per pyrotechnic charge (includes 8 pyrotechnic charges), lasting 1 to 2 seconds. These flashes of light cause temporary blinding effects with no damage to the retina of the eye. The grenade also produces a noise level of 150 to 170 dB at a 3-foot distance. The noise level can cause temporary hearing loss which lasts approximately 10 minutes. This device is designed to confuse, disorient, or momentarily distract a potentially threatening individual. Upon discharge, the metal body assembly and fuse remain intact.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, riot control, apprehension of criminals, and anti-terrorist action

**6. Primary Users:** Law enforcement and military

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Causes temporarily blindness and hearing loss which may result in disorientation

**8. Physical Data**

a. **Size:** Length = 162 mm, diameter = 63 mm

b. **Weight:** 320 grams

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Temporary blindness and hearing loss

b. **Time to Effect:** Fuse delay is  $2 \pm 0.5$  seconds

c. **Duration of Effect:** Blindness and disorientation last several seconds; hearing loss lasts up to several minutes

d. **Range:** Produces 150-170 dB at a 3-foot range

**10. Delivery Means:** Hand-thrown

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Covering eyes severely limits the effectiveness of the flash, ear plugs limit the effect of the high noise level.

b. **Weather, Environment Limitations:** Daylight severely limits the effectiveness of the flash





**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 25 DISTRACTION DEVICE\*

**3. Photograph/Description:** This device produces a very loud report and then a brilliant flash of light. The device has a gun-steel body which protects it from enemy fire, and it can also be thrown through most windows. It has a sound level of 174.5 db at 5 feet and a light level of 2,420,000 candela. The device can also be reloaded and reused up to 20 times.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage situations, SWAT operations

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

The device produces a loud report (174.5 db at 5 feet) and a bright flash (2,420,000 candela)

**8. Physical Data**

a. **Size:** Length = 5.73 inches, diameter = 1.88 inches

b. **Weight:** 25.7 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** May cause confusion. Loud bang could cause temporary hearing loss. Bright flash may impair vision.

b. **Time to Effect:** Very short time

c. **Duration of Effect:** Several seconds

d. **Range:** 174.5 dB at 5 feet

**10. Delivery Means:** Hand thrown with a 1.5 second delay and 9 milliseconds in duration

**11. Operational Strengths:** No submunitions

**12. Operational Limitations**

a. **Countermeasures:** Ear plugs, eye protection

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Can be reloaded and reused up to 20 times.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

<b>16. Cost:</b>	No. 25 Distraction Device	\$42.24	(Code 7000)
	No. 25 Reload, Distraction Device	\$17.12	(Code 7001)
	No. 25 Cleaning Kit, Distraction Device	\$10.16	(Code 7002)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE FLASH/BANG CARTRIDGE

**3. Photograph/Description:** Round travels approximately 275 feet and then detonates with a flash and loud bang similar to an M-80 firecracker

**4. History/Background:**

**5. Potential Targets/Applications:**

**6. Primary Users:** Wildlife control on farms and at airports

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The device has an extremely loud report which may frighten or confuse individuals.

**8. Physical Data**

a. **Size:** 12 gauge

b. **Weight:**

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Possible confusion, disorientation, and momentary blindness

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Seconds to minutes

d. **Range:** 275 feet

**10. Delivery Means:** 12 gauge shotgun

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Daylight, earplugs

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Phoenix Systems Inc.  
P.O. Box 3339  
Evergreen, Co 80439  
(303) 277-0305 phone  
(303) 278-8101 fax

**16. Cost: Flash/Bang Cartridge (Box of 25 Cartridges) \$39.95 (Code 1182H)**

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE NO. 23 FB DIVERSIONARY DEVICE

**3. Photograph/Description:** This round is used as a diversionary device. It has a very loud report which may cause confusion in mob situations.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The round has an extremely loud report which may frighten or confuse individuals.

**8. Physical Data**

a. **Size:** Length = 3 inches, caliber = 12 gauge

b. **Weight:** 0.64 oz.

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** May confuse, frighten individuals

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Several seconds

d. **Range:** 150 feet.

**10. Delivery Means:** Fired from a 12 gauge shot gun.

**11. Operational Strengths:** The 12 gauge shot gun is in wide use.

**12. Operational Limitations**

a. **Countermeasures:** Ear plugs

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

One shot round, ear plug may be needed when fired

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:** No.23 FB Diversionary Device      \$4.64/round      (Code 3019)

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 20 HAND THROWN DISTRACTION DEVICE

**3. Photograph/Description:** A canister grenade which produces 1.2 million candle-power of light and a noise level of 145 dB at a range of 3 feet. This enables an officer to confuse, disorient, and momentarily distract a potentially threatening individual or group.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, riot control, apprehension of criminals, or anti-terrorist action

**6. Primary Users:** Israel Law Enforcement and Defense Forces

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

**8. Physical Data**

a. **Size:** 141 mm long, 70 mm diameter

b. **Weight:** 165 grams

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Temporarily blinds individual without causing damage to the retina. Also causes temporary hearing loss and disorientation.

b. **Time to Effect:** Nearly instantaneous (Fuse has a delay of 2 seconds)

c. **Duration of Effect:** Blindness lasts several seconds, Hearing loss lasts about 10 minutes

d. **Range:** Produces a noise level of 145 dB at 3 feet

**10. Delivery Means:** Hand-thrown

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Daylight severely limits the effectiveness of light flashes. Ear plugs may limit the effectiveness of noise level.

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Alliant Techsystems  
600 Second St. NE  
Hopkins, MN 55343-8384  
(612) 931-4149 phone  
(612) 931-6654 fax

**16. Cost: No. 20 Distraction Device**



**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 30 MULTIPURPOSE STUN DISTRACTION DEVICE

**3. Photograph/Description:** A canister grenade which produces 1.5 million candle-power of light and a noise level of 145 dB at a range of 3 feet. This enables an officer to confuse, disorient, and momentarily distract a potentially threatening individual or group. This device is also available in several alternative modular canisters including: marking material (visible or imperceptible), tear gas, intolerable smell, non-lethal kinetic energy particles, or any combination of the above.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, riot control, apprehension of criminals, or anti-terrorist action

**6. Primary Users:** Israel Law Enforcement and Defense Forces

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

**8. Physical Data**

- a. **Size:** 125 mm long, 50 mm diameter
- b. **Weight:** 160 grams
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Temporarily blinds individual without causing damage to the retina. Also causes temporary hearing loss, and disorientation.
- b. **Time to Effect:** Nearly Instantaneous (Fuse has a delay of 3 seconds)
- c. **Duration of Effect:** Blindness lasts several seconds, Hearing loss lasts about 10 minutes
- d. **Range:** Produces a noise level of 145 dB at 3 feet

**10. Delivery Means:** Hand-thrown

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Daylight severely limits the effectiveness of light flashes. Ear plugs may limit the effectiveness of noise level.
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Alliant Techsystems  
600 Second St. NE  
Hopkins, MN 55343-8384  
(612) 931-4149 phone  
(612) 931-6654 fax

**16. Cost: No. 30 Distraction Device**

**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** No. 21 DISTRACTION DEVICE

**3. Photograph/Description:** Upon detonation, this canister grenade produces 8 charges of approximately 1.5 million candle-power light lasting 1-2 seconds each. Also, it produces 150 to 170 dB noise at a 3 foot distance. This device enables officers to confuse, disorient or momentarily distract a potential threat during: a hostage rescue, riot control, apprehension of criminals, or anti-terrorist action. This grenade can be detonated inside a room without fragmentation of any components or ignition of combustible materials inside the room.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, riot control, apprehension of criminals, anti-terrorist action

**6. Primary Users:** Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Causes temporary blindness, loss of hearing, and disorientation

**8. Physical Data**

a. Size: 162 mm long, 63 mm diameter

b. Weight: 320 grams

c. Power Requirements: None

**9. Performance Characteristics**

a. Effect on Target: Disorientation

b. Time to Effect: Instantaneous, Fuse has a 2 second delay

c. Duration of Effect: Temporary blindness lasts several seconds with no damage to the retina. Normal hearing returns within 10 minutes.

d. Range: Noise level is rated at 150 to 170 dB at 3 feet.

**10. Delivery Means:** Hand thrown

**11. Operational Strengths:**

**12. Operational Limitations**

a. Countermeasures: Daylight severely limits the effectiveness of light flashes. Ear plugs may limit the effectiveness of noise level.

b. Weather, Environment Limitations:

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
8 pyrotechnic charges are deployed upon detonation

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Alliant Techsystems  
600 Second St. NE  
Hopkins, MN 55343-8384  
(612) 931-4149 phone  
(612) 931-6654 fax

**16. Cost:** NO. 21 Distraction Device                      \$75/each (\$50/each for large volumes)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M416 MINI-SMOKELESS STUN GRENADE

**3. Photograph/Description:** This grenade produces a deafening blast, but with less smoke so that visibility of the user will not be impaired.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Loud blast may cause disorientation or confusion.

**8. Physical Data**

- a. **Size:** 1 3/8 inch diameter, 3 1/4 inch long
- b. **Weight:** 4 ounces.
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Loud blast may cause confusion.
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:**
- d. **Range:** Grenade is hand-thrown

**10. Delivery Means:** Grenade is hand-thrown

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Ear protection
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
User may need to wear ear protection.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$50.00 each  
\$1200.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M429 THUNDERFLASH STUN GRENADE™

**3. Photograph/Description:** This grenade produces a loud blast and a bright flash of light. The grenade has a 1 second delay fuse and is hand-thrown.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Loud blast and intense burst of light may cause disorientation and confusion.

**8. Physical Data**

a. **Size:** 2 inch diameter, 4 1/2 inch long

b. **Weight:** 6 1/2 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Disorientation and confusion

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:**

d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

**12. Operational Limitations**

a. **Countermeasures:** Eye and ear protection

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
User should wear eye and ear protection.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
TEL: (800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$40.00 each  
\$1200.00 per case (24 per case)



**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M444 LAUNCHABLE STUN GRENADE<sup>™</sup>

**3. Photograph/Description:** This grenade can be launched from a 12 gauge shotgun and has a range of 100 meters. The shotgun must have a barrel at least 18 inches long and unchoked. The grenade produces a loud blast, a bright flash of light, and emits smoke. The grenade can also be hand thrown and has a fuse delay of 1 second. The grenade comes with blank launching cartridges.

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Blast, flash, and smoke may cause confusion and disorientation.

**8. Physical Data**

a. **Size:** 11/16 inch diameter, 12 3/8 inch length

b. **Weight:** 4 1/2 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Disorientation or confusion

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:**

d. **Range:** The range is 100 meters when fired from a 12 gauge shotgun.

**10. Delivery Means:** Fired from a 12 gauge shotgun or hand-thrown

**11. Operational Strengths:** The 100 meter range allows for the user to be a large distance from the target.

**12. Operational Limitations**

a. **Countermeasures:** Eye and ear protection

b. **Weather, Environment Limitations:** Wind may effect the smoke.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The grenade is a one shot device.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
TEL: (800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$45.00 each  
\$960.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M452 STINGBALL™ STUN IMPACT GRENADE

**3. Photograph/Description:** This spherical grenade produces a loud blast and a bright flash of light. It also disperses 100 soft rubber, marble-sized stingballs. The grenade is hand-thrown and has a 1 second fuse delay. The stingballs are dispersed in a radial pattern at a velocity of 700 feet per second.

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

The blast and light flash will cause disorientation and confusion. The stingballs will cause pain on impact with the skin.

**8. Physical Data**

- a. **Size:** 3 1/4 inch diameter
- b. **Weight:** 14 1/2 ounces
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Disorientation, confusion, and pain
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:**
- d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

**12. Operational Limitations**

- a. **Countermeasures:** Ear and eye protection for the blast and the light. Heavy clothes, shield, trees, dense shrubs for the stingballs.
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Ear and eye protection should be worn by the user.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
TEL: (800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
TEL: (800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$50.00 each  
\$1200.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M459 STARFLASH™ STUN GRENADE

**3. Photograph/Description:** This grenade produces a loud blast and an intense flash of light. Along with the blast and the flash of light, the grenade produces a shower of white hot sparkles. The grenade is hand-thrown and has a fuse delay of 1 second.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The blast, flash of light, and the sparkles may cause disorientation and confusion. The sparkles may also burn the skin.

**8. Physical Data**

**a. Size:** 2 inch diameter, 4 1/2 inches long

**b. Weight:** 6 1/2 ounces

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** The blast, flash of light, and the sparkles may cause disorientation and confusion. The sparkles may also burn the skin.

**b. Time to Effect:** Instantaneous

**c. Duration of Effect:**

**d. Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:** Ear and eye protection for the blast and the light. Heavy clothes, shield, trees, dense shrubs for the sparkles.

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
User should wear ear and eye protection.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$45.00 each  
\$1080.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M465 THUNDER ROD™ STUN GRENADE  
M465M MAGNUM THUNDER ROD™ STUN GRENADE  
M465R THUNDER ROD™ STUN MUNITIONS

**3. Photograph/Description:** These grenades are made to be inserted through holes in doors. The grenades produce a loud blast and a intense flash of light. They all have a 1 second fuse delay, and the M465R comes with a 10 foot firing device so that it can be detonated from a distance.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, fugitive capture

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

The blast and the flash of light may cause disorientation and confusion. When used indoors, the blast may cause temporary hearing loss, and the flash may cause temporary blindness.

**8. Physical Data**

- a. Size:** M465: 9/16 inch diameter, 16 inches long  
M465M: 11/16 inch diameter, 18 inches long  
M465R: 9/16 inch diameter, 16 inches long
- b. Weight:** M465 : 4 1/2 ounces  
M465M: 8 ounces  
M465R: 7 1/2 ounces
- c. Power Requirements:** None

**9. Performance Characteristics**

- a. Effect on Target:** Disorientation, confusion, temporary blindness and hearing loss.
- b. Time to Effect:** Instantaneous
- c. Duration of Effect:**
- d. Range:**

**10. Delivery Means:** Hand delivered

**11. Operational Strengths:** When used through a door, the user will be partially protected from the effects of the grenade.

**12. Operational Limitations**

- a. Countermeasures:** Ear and eye protection

b. Weather, Environment Limitations:

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
One shot grenade.

13. Requirements Documentation: None

14. System Developer:           Accuracy Systems Ordnance Company  
                                  P.O. Box 41454  
                                  Phoenix, AZ 85080  
                                  (800)-starflash  
                                  FAX: (602) 433-9375

15. Manufacturer/Contractor

a. Government:

b. Manufacturer:           Accuracy Systems Ordnance Company  
                                  P.O. Box 41454  
                                  Phoenix, AZ 85080  
                                  (800)-starflash  
                                  FAX: (602) 433-9375

16. Cost:           M465: \$45.00 each,   \$1080.00 per case (24 per case)  
                      M465M:     \$50.00 each    \$1200.00 per case (24 per case)  
                      M465R:     \$50.00 each    \$1200.00 per case (24 per case)



**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M470 MAGNUM THUNDERFLASH STUN GRENADE<sup>tm</sup>

**3. Photograph/Description:** This grenade produces a loud blast and a bright flash of light. The grenade has a 1 second delay fuse and is hand-thrown.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Loud blast and intense burst of light may cause disorientation and confusion.

**8. Physical Data**

a. **Size:** 2 inch diameter, 6 1/8 inch long

b. **Weight:** 7 1/2 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Disorientation and confusion

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:**

d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

**12. Operational Limitations**

a. **Countermeasures:** Eye and ear protection

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
User should wear eye and ear protection.

**13. Requirements Documentation:** None

**14. System Developer:**

Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$45.00 each  
\$1080.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M470 MAGNUM STARFLASH STUN GRENADE<sup>tm</sup>

**3. Photograph/Description:** This grenade produces a loud blast and a bright flash of light. The grenade has a 1 second delay fuse and is hand-thrown. Along with the blast and the light flash, this grenade generates a 50 meter diameter shower of white hot sparks.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, riot situations

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Loud blast and intense burst of light may cause disorientation and confusion. The white hot sparks may burn skin.

**8. Physical Data**

a. **Size:** 2 inch diameter, 6 1/8 inch long

b. **Weight:** 7 1/2 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Disorientation and confusion, white hot sparks may burn skin.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:**

d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

**12. Operational Limitations**

a. **Countermeasures:** Eye and ear protection

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
User should wear eye and ear protection.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company

P.O. Box 41454  
Phoenix, AZ 85080

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$50.00 each  
\$1200.00 per case (24 per case)

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M453 STINGETTE™ IMPACT / DISTRACTION/DIVERSION GRENADE

**3. Photograph/Description:** This spherical grenade produces a loud blast and a bright flash of light. It also disperses 100 soft rubber, 0.45 caliber stingballs. The grenade is hand-thrown and has a 1 second fuse delay. The M453 is a less powerful version of the M452.

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The blast and light flash will cause disorientation and confusion. The stingballs will cause pain on impact with the skin.

**8. Physical Data**

a. **Size:** 2 1/2 inch diameter

b. **Weight:** 7 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Disorientation, confusion, and pain

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:**

d. **Range:** Grenade is hand-thrown.

**10. Delivery Means:** Grenade is hand-thrown.

**11. Operational Strengths:** Lightweight

**12. Operational Limitations**

a. **Countermeasures:** Ear and eye protection for the blast and the light. Heavy clothes, shield, trees, dense shrubs for the stingballs.

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Ear and eye protection should be worn by the user.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$45.00 each  
\$1080.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** STARFLASH MUZZLE BLAST (12 GAUGE)

**3. Photograph/Description:** This grenade produces a blast of white hot sparkles from muzzle. It is designed for distraction or diversion. The round has a range of 20 to 50 meters.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, tactical operations

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The blast of sparkles may cause temporarily blindness which in turn may cause disorientation or confusion. Also, the sparkles may burn skin.

**8. Physical Data**

**a. Size:** 12 gauge, 2 3/4 inches long

**b. Weight:** 1 ounce

**c. Power Requirements:** Fired from a 12 gauge shotgun.

**9. Performance Characteristics**

**a. Effect on Target:** The blast of sparkles may cause temporarily blindness which in turn may cause disorientation or confusion. The sparkles may burn skin.

**b. Time to Effect:** Instantaneous

**c. Duration of Effect:** 1 second

**d. Range:** The blast of sparkles has a range of 20 to 50 meters.

**10. Delivery Means:** Fired from a 12 gauge shotgun.

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:** Eye protection

**b. Weather, Environment Limitations:** High winds may effect the trajectory of the blast.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company

P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$7.50 each  
\$350.00 per case (50 rounds per case)



**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** THUNDERFLASH<sup>™</sup>

**3. Photograph/Description:** This round fires a projectile up to 100 meters where it explodes with a very loud blast and an intense flash of light. The round is available in short range (50 meters), medium range (75 meters), and long range (100 meters).

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Loud blast and flash of light may cause disorientation or confusion.

**8. Physical Data**

**a. Size:** 12 gauge, 2 3/4 inches long

**b. Weight:** 1/2 ounce

**c. Power Requirements:** Fired from a 12 gauge shotgun.

**9. Performance Characteristics**

**a. Effect on Target:** Disorientation or confusion

**b. Time to Effect:** Instantaneous

**c. Duration of Effect:**

**d. Range:** The projectile is available with ranges of 50, 75, and 100 meters.

**10. Delivery Means:** Fired from a 12 gauge shotgun.

**11. Operational Strengths:** This round allows the user to maintain a safe stand-off distance from the target.

**12. Operational Limitations**

**a. Countermeasures:** Eye and ear protection

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company

P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$6.50 each  
\$300.00 per case (50 rounds per case)

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** STARFLASH™

**3. Photograph/Description:** The STARFLASH™ round is a more powerful version of the THUNDERFLASH™. This round fires a projectile up to 100 meters where it explodes with a very loud blast and an intense flash of light. The round is available in short range (50 meters), medium range (75 meters), and long range (100 meters).

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Loud blast and flash of light may cause disorientation or confusion.

**8. Physical Data**

a. **Size:**12 gauge, 2 3/4 inches long

b. **Weight:** 1/2 ounce

c. **Power Requirements:** Fired from a 12 gauge shotgun.

**9. Performance Characteristics**

a. **Effect on Target:**Disorientation or confusion

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:**

d. **Range:** The projectile is available with ranges of 50, 75, and 100 meters.

**10. Delivery Means:** Fired from a 12 gauge shotgun.

**11. Operational Strengths:** This round allows the user to maintain a safe stand-off distance from the target.

**12. Operational Limitations**

a. **Countermeasures:** Eye and ear protection

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company

P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$7.50 each  
\$350.00 per case (50 rounds per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M408 ILLUMINATOR GRENADE<sup>™</sup>

**3. Photograph/Description:** This grenade provides illumination for dark rooms. The grenade ejects four chemical lights that provide flameless light for several minutes.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, fugitive capture

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Bright light may cause temporary blindness.

**8. Physical Data**

- a. Size: 2 inch diameter
- b. Weight: 8 ounces
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Bright light may cause temporary blindness.
- b. Time to Effect: Instantaneous
- c. Duration of Effect: Several minutes
- d. Range: Hand-thrown

**10. Delivery Means:** Hand-thrown

**11. Operational Strengths:** Can illuminate completely dark rooms.

**12. Operational Limitations**

- a. Countermeasures: Dark glasses, eye protection
- b. Weather, Environment Limitations:
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
Eye protection for grenade user may be needed.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080

**16. Cost:** \$55.00 each  
\$1,320.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** STARFLASH MUZZLE BLAST (37MM/38MM)

**3. Photograph/Description:** This round produces a shower of white-hot, sizzling sparkles. The shower has a range of approximately 30 meters. This round can be used to intimidate rioting crowds.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Shower of sparkles may cause confusion or temporarily blindness. The sparkles may burn skin.

**8. Physical Data**

a. **Size:** 1 1/2 inch diameter, 4 5/8 inches long

b. **Weight:** 4.5 ounces

c. **Power Requirements:** Fired from a 37mm/38mm gas gun

**9. Performance Characteristics**

a. **Effect on Target:** Shower of sparkles may cause confusion or temporarily blindness. The sparkles may burn skin.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** 1 second

d. **Range:** 30 meters.

**10. Delivery Means:** Fired from a 37mm/38mm gas gun.

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Eye protection for the bright light.

b. **Weather, Environment Limitations:** Wind may effect the trajectory of the spark shower.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
User should wear eye protection. This is a one shot round.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454

Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$810.00 per case (24 rounds per case)



**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M460M MAGNUM THUNDERSTRIP® STUN MUNITION

**3. Photograph/Description:** The M460M is a device that is used to produce a blast that will stun individuals inside a room or enclosure. The M460M is a thin munitions and can be slid under a door. Shocktube/flashtube/nonel is used to detonate the grenade from a safe stand-off distance. The M460M is a more powerful version of the M460.

**4. History/Background:**

**5. Potential Targets/Applications:** Rapid entry situation

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

When the grenade is detonated, the blast and flash stun and disorient the room or enclosure occupants.

**8. Physical Data**

a. **Size:** 1/8 inch thick, 18 inch long, 3 inch wide

b. **Weight:** 6 ounces

c. **Power Requirements:** None.

**9. Performance Characteristics**

a. **Effect on Target:** Stuns room or enclosure occupants

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Seconds to minutes

d. **Range:** 10 feet of shocktube/flashtube/nonel is provided with each munition.

**10. Delivery Means:** Hand emplaced

**11. Operational Strengths:** Allows users to access locked or windowless rooms with less possibility of injury.

**12. Operational Limitations**

a. **Countermeasures:** Ear and eye protection

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot. User should se ear and eye protection.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**  
**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$50.00 each  
\$1200.00 per case (24 per case)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** ELECTRICAL STUN DEVICES (HAND-HELD, PROBE OR CONTACT)

**3. Photograph/Description:**

**CellServ Communications, Inc.**

Air Taser® - Hand held, non-lethal self-protection system. Uses compressed air cartridge to propel tiny barbs or probes attached to 15 feet of wire. Powerful electrical pulses are transmitted to the target through these probes. Once probes are launched, the device stays active for 30 seconds. Device can also be used as a stun gun in case of multiple attackers or missed target.

**S & J Products and Services**

Security Plus® 100,000 Volt Stun Gun - Straight or Curved

Security Plus® 200,000 Volt Stun Gun - Straight or Curved

Security Plus® 160,000 Volt Baton - Device delivers 160,000 volts

**Knock-Out Security Products**

200,000 Volt Stun Gun with Safety Switch - Device delivers 200,000 volts

150,000 Volt Stun Gun with Safety Switch - Device delivers 150,000 volts

120,000 Volt Stun Gun with Safety Switch - Device delivers 120,000 volts

100,000 Volt Mini Stun Gun with Safety Switch - Device delivers 10,000 volts

80,000 Volt Straight Stun Gun - Device delivers 80,000 volts

80,000 Volt Curved Stun Gun - Device delivers 80,000 volts

160,000 Volt Stun Baton - Device is electrified at the tip only, delivers 160,000 volts

**U.S. Calvary**

Thunder - Device uses a micro-locking on/off switch to prevent accidental discharge, delivers 65,000 volts.

Thunder Power - Device uses a micro-locking on/off switch to prevent accidental discharge, delivers 125,000 volts.

Thunder Stunner - Device is disarmed and unusable when detached from wrist strap, delivers 65,000 volts.

**Electromax**

Electromax Stun Baton - Device delivers 200,000 volts upon being struck.

**Phoenix Systems, Inc.**

Pocket 50,000 Volt - Device delivers 50,000 volts

Strobe 70,000 Volt - Device delivers 70,000 volts combined with a repeating strobe

Power Max 90,000 Volt - Device delivers 90,000 volts

Maxi/Strobe 120,000 Volt - Device delivers 160,000 volts with a repeating strobe

Spiral Baton 150,000 Volt - Device is electrified along the length of the shaft and at the tip, delivers 150,000 volts

**4. History/Background:** Electrical stun devices have been in use by police and possibly some military forces for the past 10 years

## **5. Potential Targets/Applications: Individuals**

**6. Primary Users:** Civilian, law enforcement, and military personnel.

## **7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

**Air Taser®** - Electrical incapacitation is achieved with 15 pulses per second of microsecond duration T-waves. T-wave has 50 kV peak voltage, 10,000 Watts per peak pulse. The electrical stimulus delivered by the device interferes with the normal electrical signals generated by the human nervous systems. The result of this interference ranges from muscle spasms, to disorientation, to unconsciousness.

**Electrical Stun Devices** (all of the above devices except for the Air Taser®) - Electrical incapacitation is achieved with a high voltage, low current electrical shock. The electrical stimulus delivered by the device interferes with the normal electrical signals generated by the human nervous systems. The result of this interference ranges from muscle spasms, to disorientation, to unconsciousness.

## **8. Physical Data**

**Air Taser®**

- a. Size: 8 inch x 1 1/2 inch x 2 5/8
- b. Weight: 20 ounces
- c. Power Requirements: 9 volt battery

**Security Plus® 100,000 Volt Stun Gun - Straight or Curved**

- a. Size:
- b. Weight:
- c. Power Requirements: One 9 volt battery

**Security Plus® 200,000 Volt Stun Gun - Straight or Curved**

- a. Size:
- b. Weight:
- c. Power Requirements: One 9 volt battery

**Security Plus® 160,000 Volt Baton**

- a. Size:
- b. Weight:
- c. Power Requirements: 9 volt battery

**200,000 Volt Stun Gun with Safety Switch**

- a. Size:
- b. Weight:
- c. Power Requirements: 9 volt battery

**150,000 Volt Stun Gun with Safety Switch**

- a. Size:
- b. Weight:
- c. Power Requirements: 9 volt battery

**120,000 Volt Stun Gun with Safety Switch**

- a. Size:
- b. Weight:
- c. Power Requirements: 9 volt battery

**100,000 Volt Mini Stun Gun with Safety Switch**

- a. Size:
- b. Weight:

c. Power Requirements: 9 volt battery  
80,000 Volt Straight Stun Gun

a. Size:

b. Weight:

c. Power Requirements:

80,000 Volt Curved Stun Gun

a. Size:

b. Weight:

c. Power Requirements: 9 volt battery

160,000 Volt Stun Baton

a. Size:

b. Weight:

c. Power Requirements: 9 volt battery

Thunder

a. Size:

b. Weight:

c. Power Requirements: One 9 volt battery

Thunder Power

a. Size:

b. Weight:

c. Power Requirements: One 9 volt battery

Thunder Stunner

a. Size:

b. Weight:

c. Power Requirements: One 9 volt battery

Electromax Stun Baton

a. Size: 18 in long

b. Weight: 3 lbs.

c. Power Requirements: 9 volt battery

Pocket 50,000 Volt

a. Size: 4.1 inch x 2.3 inch x 1.3 inch

b. Weight: 3 oz.

c. Power Requirements: 9 volt battery

Strobe 70,000 Volt

a. Size: 6 inch x 2.3 inch x 1.5 inch

b. Weight: 8 oz.

c. Power Requirements: 9 volt battery

Power Max 90,000 Volt

a. Size: 6.9 inch x 2.4 inch x 1.7 inch

b. Weight: 8 oz.

c. Power Requirements: 9 volt battery

Maxi/Strobe 120,000 Volt

a. Size: 7 inch x 2.4 inch x 1.3 inch

- b. Weight: 8 oz.
  - c. Power Requirements: 9 volt battery
- Spiral Baton 150,000 Volt
- a. Size: 1 3/4 inch diameter x 20 inch long
  - b. Weight: 1 lb 2 oz.
  - c. Power Requirements: two 9 volt batteries

## 9. Performance Characteristics

### a. Effect on Target:

Air Taser® - Target is knocked down, and incapacitated, incapacitation lasts for 1 to 15 minutes. Device has an effective stop rate of 86%.

Electrical Stun Devices other than the Air Taser® - 1/2 second contact startles the individual by producing pain and severe muscle contractions, 1 to 2 seconds of contact produces muscle spasms and a stupor like state, 3 to 5 seconds produces complete incapacitation (confusion, disorientation, loss of muscle control) which last as long as 15 minutes.

b. Time to Effect: Instantaneous (all electrical stun devices)

c. Duration of Effect: Effects can linger for up to 15 minutes (all electrical stun devices)

d. Range: 15 feet for the Air Taser®. Direct contact with the individual is required for the electrical stun devices other than the Air Taser®.

## 10. Delivery Means:

Air Taser® is hand-held and propels two tiny probes. The electrical stun devices, other than the Air Taser®, are hand-held and must make contact with the individual to be effective.

## 11. Operational Strengths: Hand held, battery powered, proven capability

## 12. Operational Limitations

a. Countermeasures: Body armor, heavy leather jacket, heavy winter jacket

b. Weather, Environment Limitations: Operational temperature range is 20°F to 114°F.

Water/moisture resistance is unknown.

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

Air Taser® is for single shot use, effective against only a single, individual target. Can be reloaded for future use. Manufacturer claims that the device does not interfere with pace makers and causes no long-term injuries. However, in an article by Dr. Terence B. Allen in the Journal of Forensics, Dr. Allen warns that Taser-related deaths may be caused by pre-existing medical conditions. People who are drug users or have heart disease may be at greater risk of dying if a Taser is used on them. Effective against an individual human target. It is possible to miss the target

Stun guns are for multiple shots, however, there is a definite recharge time required for the charging circuits and charge storing components to refresh the high voltage charge.

## 13. Requirements Documentation:

## 14. System Developer:

15. Manufacturer/Contractor - see following table

- a. Government:  
b. Manufacturer:

Electrical Stun Devices		
Supplier	Product Name	Cost
CellServ Communications, Inc 2501 Mossie Blvd. Monroeville, PA 15146 (800) 297-5550 (412) 373-5552 fax	Air Taser® - Kit contains instructional video, practice target, two air cartridges, carrying strap, instruction manual, high-impact carrying case	\$249.95 for one kit, replacement air cartridges cost \$59.95 for a pack of two. (These prices are retail prices)
S&J Products and Services 1005 N. 1st Street Yakima, WA 98901 (800) 735-1797 (509) 575-1875	1. Security Plus® 100,000 Volt Stun Gun, Straight or Curved 2. Security Plus® 160,000 Volt Baton 3. Security Plus® 200,000 Volt Stun Gun, Straight or Curved	1. 2 to 99 units \$19.95 each, 100+ units \$13.95 each, retail \$69.95 2. 2 to 99 units \$49.95 each, 100+ units \$38.95 each, retail \$129.95 3. 2 to 99 units \$29.95 each, 100+ units \$24.95 each, retail \$119.95
Knock-Out Security Products 4872 SW 72nd Avenue Miami, FL 33155 (305) 661-9990	1. 200,000 Volt Stun Gun with Safety Switch 2. 150,000 Volt Stun Gun with Safety Switch 3. 120,000 Volt Stun Gun with Safety Switch 4. 100,000 Volt Mini Stun Gun with Safety Switch 5. 80,000 Volt Straight Stun Gun 6. 80,000 Volt Curved Stun Gun 7. 160,000 Volt Stun Baton	1. \$40.65 each 2. \$38.45 each 3. \$28.55 each 4. \$25.25 each 5. \$19.75 each 6. \$19.75 each 7. \$54.95 each (These prices are wholesale)
U.S. Cavalry 2855 Centennial Avenue Radcliff, KY 40160-9000	1. Thunder 2. Thunder Power 3. Thunder Stunner	1. \$29.95 2. \$39.95 3. \$49.95

Electrical Stun Devices		
Supplier	Product Name	Cost
Electromax 11140 Westhiemer Houston TX 77042 POC: Kevin Cassidy (713) 531-7437	1. Electromax Stun Baton	1. \$150.00
Phoenix Systems Inc. P.O. Box 3339 Evergreen, CO 80439 (303) 277-0305 (303) 278-8101	1. Pocket 50,000 Volt 2. Strobe 70,000 Volt 3. Power Max 90,000 Volt 4. Maxi/Strobe 120,000 Volt 5. Spiral Baton 150,000 Volt	1. \$49.95 2. \$59.95 3. \$89.95 4. \$119.95 5. \$139.95 These are retail prices.

16. Cost: See above table



**Latest Revision Date:** October 12, 1995

**1. Status:** Near Term (prototype exists)

**2. Weapon Name:** LIQUID CONDUCTIVE THREAD PROJECTOR

**3. Photograph/Description:** The hand-held device uses pulsed electronic currents to incapacitate one or several subjects. The current is delivered by thin threads/streams of a low melting point metallic alloy which are propelled from the device. The device creates an electrical potential between the streams which allows the pulsed current to be applied to the target. The unit is powered by batteries. Three prototypes exist. Information will be given for the latest and lightest weight prototype. The developers at IBM call this method of delivering an electrified stream, "Plastic Metal Directed Energy Beams".

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, suspect apprehension

**6. Primary Users:** Law enforcement, military personnel, government agencies

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Incapacitation is achieved by pulsed electric current.

**8. Physical Data**

- a. **Size:** 10.7 inch x 12.2 inch x 4.6 inch
- b. **Weight:** 14 lbs
- c. **Power Requirements:** Self Contained Battery

**9. Performance Characteristics**

- a. **Effect on Target:**
- b. **Time to Effect:**
- c. **Duration of Effect:** 6 seconds (stream duration) plus 1 to 15 minutes for the recovery time of the individual.
- d. **Range:** 12 feet

**10. Delivery Means:** Stream of metal alloy delivers pulses of electric current

**11. Operational Strengths:** Fast acting, can effect multiple targets

**12. Operational Limitations**

- a. **Countermeasures:**
- b. **Weather, Environment Limitations:** Lead alloy
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:** J.S. Batchelder  
IBM  
D.S. Friedman  
IBM Thomas J. Watson Research Center  
(203) 622-6806

**15. Manufacturer/Contractor**

**a. Government:** John Cline  
ARDEC  
DSN 880-6053  
(201)724-6053

**b. Manufacturer:**

**16. Cost:** Not determined yet

**1. Status:** Currently Available

**2. Weapon Name:** Taser TE-86

**3. Photograph/Description:** A non-lethal, hand-held immobilization weapon designed to incapacitate an individual within a range of 15 feet. When fired, it propels a pair of barbed darts attached to two trailing wires at the subject. Once contact is made, it begins discharging a metered and pulsed current throughout the subject's body. An optional probe may be used in place of the barbed dart cartridge to transmit the current. Note that the Air Taser® and the other electrical stun guns are available to the public, whereas the Taser TE-86 is only available to law enforcement and other agencies (not available for public purchase).

**4. History/Background:**

**5. Potential Targets/Applications:** A dangerous assailant

**6. Primary Users:** Law enforcement officers

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

As current is sent through the body, the subject experiences involuntary muscle spasms and severe loss of motor control causing him to fall to the ground.

**8. Physical Data**

a. **Size:** 9 inch x 2 inch x 3 inch

b. **Weight:** 22 ounce, barbed dart projectiles are 1.4 grams each

c. **Power Requirements:** 7.2 volt battery

**9. Performance Characteristics**

a. **Effect on Target:** Immobilizes the subject through involuntary muscle spasms and loss of motor control.

b. **Time to Effect:** Loss of motor control begins instantaneously, subject is totally immobilized in 5 to 10 seconds

c. **Duration of Effect:** Up to several minutes

d. **Range:** 3 foot to 12 foot (optimum), 15 foot (maximum)

**10. Delivery Means:** Current is delivered by two barbs which are projected at the subject.

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Shield, loose hanging clothing which provides more than a 1 1/2 inch gap between the darts and the target's body, remain more than 15 feet from Taser gun

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Taser TE-86 holds two shots. No long term effects are known to occur with proper use. Fatalities

are possible if charge is applied to the subjects body for extended periods of time. Taser can be used on subject when he/she is standing in water without electrocution occurring. Electric shock will not be felt by someone touching the subject while current is being applied.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Tasertron  
1785 Pomona Rd. Suite C  
Corona, CA 91720  
(909) 340-0896  
(909) 340-0899 fax

**16. Cost:**

**Weapons**

Taser TE-86	\$460.00	(Code TF-76)
Reconditioned TE-86	\$360.00	(Code RF-00)

Note: All weapons include two batteries, a charger, and a one year warranty.

**Cartridges**

Standard 6 Pack Cartridge	\$98.50	(Code SC-10)
Practice 6 Pack Cartridge	\$85.50	(Code PC-20)

**Accessories**

Taser Carrying Case	\$45.00	(Code CG-10)
Probe Pack Set(Cartridge and Probe)	\$59.95	(Code AC-10)
Replacement Probes (set of 2)	\$26.50	(Code AC-15)
Replacement Probe Pack(Cartridge only)	\$43.50	(Code AC-10)
Leather Holster (Plain Finish-Black)	\$47.30	(Code AC-20)
Taser Nicad Battery	\$10.95	(Code AC-25)
Taser Nicad Battery Charger	\$18.00	(Code AC-30)
Practice Mylar/Chrome Target	\$22.00	(Code AC-35)
Operational Training Manual	\$26.40	(Code AC-40)
Cutaway Cartridge (Training Aid)	\$27.50	(Code CC-10)
Forward Housing (Training Aid)	\$38.50	(Code DF-10)

**Tasertron Warranty**

Parts (1 Year) Labor (90 days)		
Extended 1 year Warranty	\$105.00	(Code WA-10)

**1. Status:** Currently Available

**2. Weapon Name:** Taser TE-93

**3. Photograph/Description:** A non-lethal, hand-held immobilization weapon designed to incapacitate an individual within a range of 15 feet. When fired, it propels a pair of barbed darts attached to two trailing wires at the subject. Once contact is made, it begins discharging a metered and pulsed current throughout the subject's body. An optional probe may be used in place of the dart cartridge to transmit the current. Taser is equipped with a safety strap which disables the weapon if removed from the user's hand. An optional laser sight is available which projects either a single or double dot onto the target. Note that the Air Taser<sup>®</sup> and the other electrical stun guns are available to the public, whereas the Taser TE-93 is only available to law enforcement and other agencies (not available for public purchase).

**4. History/Background:**

**5. Potential Targets/Applications:** A dangerous assailant

**6. Primary Users:** Law enforcement officers

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

As current is sent through the body, the subject experiences involuntary muscle spasms and severe loss of motor control causing him to fall to the ground.

**8. Physical Data**

- a. **Size:** 9 inch x 2 inch x 3 inch
- b. **Weight:** 14 ounce, barbed dart projectiles are 1.4 grams each
- c. **Power Requirements:** 7.2 volt battery

**9. Performance Characteristics**

- a. **Effect on Target:** Immobilizes the subject through involuntary muscle spasms and loss of motor control.
- b. **Time to Effect:** Loss of motor control begins instantaneously, subject is totally immobilized in 5-10 seconds
- c. **Duration of Effect:** Up to several minutes
- d. **Range:** 3 feet to 12 feet (optimum), 15 feet (maximum)

**10. Delivery Means:** Current is delivered by two barbs which are projected at the subject.

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Shield, loose hanging clothing which provides more than a 1 1/2 inch gap between the darts and the target's body, remain more than 15 feet from Taser gun
- b. **Weather, Environment Limitations:**

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Taser TE-93 holds one shot. No long term effects are known to occur with proper use. Fatalities are possible if charge is applied to the subject's body for extended periods of time. Taser can be used on subject when he/she is standing in water without electrocution occurring. Electric shock will not be felt by someone touching the subject while current is being applied.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Tasertron  
1785 Pomona Rd. Suite C  
Corona, CA 91720  
(909) 340-0896  
(909) 340-0899 fax

**16. Cost:**

**Weapon**

Taser TE-93	\$395.00	(Code TE-93)
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Note: All weapons include two batteries, a charger, and a one year warranty.

**Cartridges**

Standard 6 Pack Cartridge	\$98.50	(Code SC-10)
Practice 6 Pack Cartridge	\$85.50	(Code PC-20)

**Accessories**

Laser Sight(includes 2 batteries)	\$250.00	(Code LS-10)
Taser Carrying Case	\$45.00	(Code CG-10)
TE-93 Holster	\$47.50	(Code AC-93)
Antenna Probe Set	\$69.00	(Code AP-10)
Charger Plug	\$19.50	(Code CP-93)
Belt Clip	\$15.00	(Code BC-93)
Vehicle Gun Lock/Charger	\$89.00	(Code GC-10)
Taser Nicad Battery	\$10.95	(Code AC-25)
Gun Lock Solenoid Saver	\$29.00	(Code SS-10)
Charger	\$18.00	(Code AC-30)
"N" Cell Battery	\$1.95	(Code AC-05)

**Latest Revision Date:** October 11, 1995

**1. Status:** Near Term

**2. Weapon Name:** 5.56 MM DISORIENTATION DEVICE

**3. Photograph/Description:** This ammunition is fired from an M16 rifle using a dedicated 5.56 mm magazine or launching device. Upon impact, two electrodes make contact with the target and discharge a built-in capacitor. It inflicts an electric shock in the individual which potentially causes disorientation.

**4. History/Background:**

**5. Potential Targets/Applications:** Unruly individual

**6. Primary Users:** Product is still in development stages

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Electrical shock interferes with the normal nerve signals which control muscle activity and brain activity.

**8. Physical Data**

- a. Size: 5.56 mm diameter
- b. Weight: To be determined
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Electric shock causes disorientation
- b. Time to Effect: Instantaneous upon impact
- c. Duration of Effect: Unknown, most likely the duration of the effect is equal to the duration of the electrical shock plus a short recovery time.
- d. Range: 100 meters

**10. Delivery Means:** M16 rifle

**11. Operational Strengths:**

**12. Operational Limitations**

- a. Countermeasures:
- b. Weather, Environment Limitations:
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Alliant Techsystems  
600 Second St. NE  
Hopkins, MN 55343-8384  
(612) 931-4149 phone  
(612) 931-6654 fax

**16. Cost: To be determined**



**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** BEAN BAG BATON

**3. Photograph/Description:** An aluminum baton which fires a bean bag filled with lead shot at 300 feet per second. It utilizes an air cartridge to propel the bean bag.

**4. History/Background:**

**5. Potential Targets/Applications:**

**6. Primary Users:**

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Impact causes pain and discomfort.

**8. Physical Data**

- a. Size:
- b. Weight:
- c. Power Requirements: Air-filled cartridge

**9. Performance Characteristics**

- a. Effect on Target:
- b. Time to Effect:
- c. Duration of Effect:
- d. Range:

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

- a. Countermeasures:
- b. Weather, Environment Limitations:
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** DOOR JAM SPREADERS

**3. Photograph/Description:** A device used to gain entry to locked doors. These hydraulic devices spread the door away from the door frame.

**4. History/Background:**

**5. Potential Targets/Applications:** Building entry situations

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

A manual or electric pump provides the hydraulic pressure to force the door away from the door jam.

**8. Physical Data**

**a. Size:** Omni<sup>®</sup> Jamb Spreader = 26 inch long (retracted), 46 inch long (extended)  
Magnum Force<sup>®</sup> Combi-Tool = 34 inch long  
Magnum Force<sup>®</sup> 5 inch Cutter = 30 inch long  
Hydra-Force III, Law Enforcement Model = 16 inch long  
Hydra-Force Spreader (9 inch) = 20 inch long by 2½ inch wide  
Hydra-Force Spreader (4 inch) = 8 inch long by 2 inch wide  
Hydra-force IV = 15 inch long

**b. Weight:** Omni<sup>®</sup> Jamb Spreader = 19.5 lbs.  
Magnum Force<sup>®</sup> Combi-Tool = 33 lbs.  
Magnum Force<sup>®</sup> 5 inch Cutter = 27.5 lbs.  
Hydra-Force III, Law Enforcement Model = less than 20 lbs.  
Hydra-Force Spreader (9 inch) = 20 lbs.  
Hydra-Force Spreader (4 inch) = 3 lbs.  
Hydra-force IV = 9 lbs.

**c. Power Requirements:** Batteries or gas powered electrical generator if electric pump is used.  
No power requirements if hand or foot pumps are used.

**9. Performance Characteristics**

**a. Effect on Target:** Opens locked doors.  
**b. Time to Effect:** Seconds  
**c. Duration of Effect:** Permanent  
**d. Range:** Must be in direct contact with the door and the frame.

**10. Delivery Means:** Hand-held

**11. Operational Strengths:**

**12. Operational Limitations**

- a. Countermeasures:
- b. Weather, Environment Limitations:
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

- a. Government:
- b. Manufacturer: B-Safe Industries, Inc.  
P.O. Box 153-H  
Scarsdale, NY 10583-8653  
(914) 723-2553  
(914) 725-2925 (fax)

16. Cost:	Omni <sup>®</sup> Jamb Spreader	\$595.00	(Code F821-03)
	Magnum Force <sup>®</sup> Combi-Tool	\$3950.00	(Code F810-33)
	Magnum Force <sup>®</sup> 5" Cutter	\$3975.00	(Code F811-05)
	Hydra-Force III, Law Enforcement Model	\$1275.00	(Code F803-03)
	Hydra-Force Spreader (9 inch)	\$575.00	(Code F801-09)
	Hydra-Force Spreader (4 inch)	\$250.00	(Code F802-04)
	Hydra-force IV	\$1225.00	(Code F804-02)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** DOOR RAMS

**3. Photograph/Description:** Devices are used to open doors by impact.

**4. History/Background:**

**5. Potential Targets/Applications:** Rapid entry situations into buildings.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Large metal rams are swung and impacted on the door usually near locks or hinges. The impact results in the locks or hinges being broken and the door opening.

**8. Physical Data**

- a. **Size:** SupRam-It<sup>®</sup>, length = 30 inch  
SupRam-It<sup>®</sup> II, length = 40 inch  
Ram-It Plus, length = 30 inch
- b. **Weight:** SupRam-It<sup>®</sup>, weight = 35 lbs.  
SupRam-It<sup>®</sup> II, weight = 50 lbs  
Ram-It Plus, weight = 35 lbs.
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Opens door
- b. **Time to Effect:** Instantaneous to seconds upon impact depending on how many swings are needed to open the door.
- c. **Duration of Effect:** Permanent
- d. **Range:** Must make contact with the target door.

**10. Delivery Means:** Hand-Held

**11. Operational Strengths:** Mobile, simple construction, non-mechanical, can not break down, no maintenance.

**12. Operational Limitations**

- a. **Countermeasures:**
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Must make contact with the door. Can be used many times

**13. Requirements Documentation:** None

**14. System Developer:** SupRam-IT<sup>®</sup>

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** B-Safe Industries, Inc.  
P.O. Box 153-H  
Scarsdale, NY 10583-8653  
(914) 723-2553  
(914) 725-2925 (fax)

<b>16. Cost:</b>	SupRam-It <sup>®</sup>	\$275.00
	SupRam-It <sup>®</sup> II	\$325.00
	Ram-It Plus	\$250.00

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** GRENADE LAUNCHERS FOR 12-GAUGE SHOTGUNS AND 37 MM GUNS

**3. Photograph/Description:** The Grenade Launchers are intended to increase the range of hand-thrown grenades. The launchers allow grenades to be propelled from 12-gauge shotguns and 37 mm gas guns. The launchers fit over the muzzle of the weapon and are held in place by a hose-clamp type of fitting. The launchers provide a single shot capability. A special launcher cartridge is used to propel the grenade. Six models are available:

Model 452 is for the Federal 112, 555, 115, and 515 grenades with a 12-gauge shotgun;

Model 454 is for the Federal 118 and 518 grenades with a 12-gauge shotgun;

Model 456 is for the Federal 119 and 519 grenades with a 12-gauge shotgun;

Model 450-A is for the Federal 112, 555, and 115 grenades with a 37 mm gas gun;

Model 458 is for the Federal 119, 519, and 515 grenades with a 37 mm gas gun;

Model 459 is for the Federal 118 and 518 grenades with a 37 mm gas gun

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Dependant upon the type of grenade launched.

**8. Physical Data**

- a. Size:**
  - Model 452 is 210 mm (8.25 inches) long
  - Model 454 is 229 mm (9 inches) long
  - Model 456 is 194 mm (7.6 inches) long
  - Model 450-A is 179 mm (7 inches) long
  - Model 458 is 170 mm (6.7 inches) long
  - Model 459 is 189 mm (7.5 inches) long
- b. Weight:**
  - Model 452 weighs 0.55 kg (1.2 lbs)
  - Model 454 weighs 0.68 kg (1.5 lbs)
  - Model 456 weighs 0.48 kg (1.06 lbs)
  - Model 450-A weighs 0.49 kg (1.08 lbs)
  - Model 458 weighs 0.54 kg (1.2 lbs)
  - Model 459 weighs 0.71 kg (1.5 lbs)
- c. Power Requirements:** Special 12-gauge or 37 mm launcher cartridge

**9. Performance Characteristics**

- a. Effect on Target:** Dependant upon the type of grenade launched by the particular device.
- b. Time to Effect:** Dependant upon the type of grenade launched by the particular device.

- c. **Duration of Effect:** Dependant upon the type of grenade launched by the particular device.
- d. **Range:** Dependant upon the type of grenade launched by the particular device.

**10. Delivery Means:** 12-gauge shotgun or 37 mm gas gun with special launcher cartridges

**11. Operational Strengths:** Provides greater standoff from the target than can be achieved with hand-thrown grenades.

**12. Operational Limitations**

- a. **Countermeasures:** Dependant upon the type of grenade launched by the particular device.
- b. **Weather, Environment Limitations:** Dependant upon the type of grenade launched by the particular device.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Dependant upon the type of grenade launched by the particular device.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

- a. **Government:**
- b. **Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Ave.  
Bennington, Vermont 05201  
(800) 639-4530  
(802) 442-3823 fax

<b>16. Cost:</b>	Model 452	\$65.00
	Model 454	\$65.00
	Model 456	\$65.00
	Model 450-A	\$65.00
	Model 458	\$65.00
	Model 459	\$65.00



**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** GRENADE LAUNCHERS AND LAUNCHING CARTRIDGES

**3. Photograph/Description:** Grenade launchers are used when greater distances are required in the placement of hand grenades in tactical situations. They allow the user to remain a safe distance away from the disturbance but still deliver the grenade. Grenade launchers are fastened on to the end of the barrel of either 37/38 mm gas guns or 12-gauge shotguns. They are capable of projecting a hand grenade, which is normally hand thrown, up to 90 yards. The grenade cartridges are used like a shell in the gun and initiate the grenade launch. Several models are available for different applications:

Grenade Launchers

No. 32 Launcher(used with 37/38 mm gas gun) launches No.2, No.3, or No.4 grenades by Def-Tech;  
No. 33 Launcher (used with a 12 gauge shotgun) launches No.2, No.3, or No.4 grenades by Def-Tech;  
No. 34 Launcher (used with a 12 gauge shotgun) launches No.15 grenade by Def-Tech;  
No. 100 Launcher (used with a 12 gauge shotgun) launches No.98 tactical grenade by Def-Tech;

Launching Cartridges

No. 35 Launching Cartridge (used in a 12 gauge shotgun) is used with the No.33, No.34, No.100 Launchers;  
No. 36 Launching Cartridge (used in No.1315/No.1316 37 mm gas guns) is used with the No.32 Launcher;

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement, military operations

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Dependent on the grenade used.

**8. Physical Data**

a. **Size:** Launchers are approximately 8 inch long

b. **Weight:**

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Dependent on the grenade used.

b. **Time to Effect:** Dependent on the grenade used.

c. **Duration of Effect:** Dependent on the grenade used.

d. **Range:** Up to 90 yards

**10. Delivery Means:**

11. Operational Strengths: Increases distance between user and target.

12. Operational Limitations

a. Countermeasures: Dependent on the grenade used.

b. Weather, Environment Limitations: Dependent on the grenade used.

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
Reusable

13. Requirements Documentation: None

14. System Developer:

15. Manufacturer/Contractor

a. Government:

b. Manufacturer: Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

16. Cost:

Grenade Launchers

No. 32 Launcher	\$53.92	(Code 1390)
No. 33 Launcher	\$53.92	(Code 1350)
No. 34 Launcher	\$62.88	(Code 1380)
No. 100 Launcher	\$42.68	(Code 1370)

Launching Cartridges

No. 35 Launching Cartridge	\$3.12	(Code 1210)
No. 36 Launching Cartridge	\$3.96	(Code 1270)

**Latest Revision Date:** October 12, 1995

**1. Status:** Near Term

**2. Weapon Name:** PROJECTILE LAUNCHER WITH IMPACT CONTROL

**3. Photograph/Description:** The launcher employs an active laser range finder to determine the distance between the launcher and the target. With an accurate distance, the launcher can calculate the launch velocity so that the impact velocity at the target will be constant and in the non-lethal regime in every firing situation.

**4. History/Background:** There have been fatalities in situations where non-lethal weapon launchers have been employed. In riot situations or one-on-one confrontations, this launcher could reduce the risk of fatalities by reducing the impact velocity for targets that are relatively close. National Institute of Justice awarded Lawrence Livermore National Laboratory a contract to develop this launcher in 1992.

**5. Potential Targets/Applications:** Crowd dispersal, military operations

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent on the round used.

**8. Physical Data**

- a. Size:
- b. Weight:
- c. Power Requirements:

**9. Performance Characteristics**

- a. Effect on Target: Dependent on the round used.
- b. Time to Effect: Dependent on the round used.
- c. Duration of Effect: Dependent on the round used.
- d. Range: Variable

**10. Delivery Means:**

**11. Operational Strengths:** Device delivers a non-lethal impact to the target regardless of the target range (as long as the target is within some maximum weapon range/round range). Reduces the risk of serious injury.

**12. Operational Limitations**

- a. Countermeasures: Shields, trees, dense shrubs or bushes
- b. Weather, Environment Limitations: Heavy fog or rain may affect the laser range finder portion of the weapon. Strong winds over long ranges will affect accuracy of round, especially at

non-lethal impact velocities.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

If the target is impacted in vulnerable regions of the body, serious injury or death may result even though the impact velocity is in the non-lethal regime for the torso or the extremities.

**13. Requirements Documentation:** None

**14. System Developer:** Lawrence Livermore National Laboratory  
Point of Contact:  
Dr. Harold Levie  
(510) 423-1503

**15. Manufacturer/Contractor**

**a. Government:** National Institute of Justice

**b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** RCC-95 MLO LAUNCH ADAPTER  
RCC-96 MLO LAUNCH ADAPTER

**3. Photograph/Description:** An adapter which attaches to the end of a rifle barrel within 30 seconds allowing for the firing of less lethal ammunition. Adapter is to be used with RCC-95/RCC-96 ammunition which consists of plastic-wrapped cylinders that travel at 130 meters per second.

**4. History/Background:**

**5. Potential Targets/Applications:** Mob dispersal

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Blunt rubber projectiles stun individuals and deter mobs without penetrating the body.

**8. Physical Data**

- a. **Size:** 220 mm long (adds 195 mm to length of rifle barrel)
- b. **Weight:** 350 grams
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Ammunition acts to temporarily stun or incapacitate an individual
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:** Varies
- d. **Range:** See RCC-95/RCC-96 Ammunition in Ballistics section

**10. Delivery Means:** M16A1, M16A2, Israeli Galil, any rifle with NATO flash suppressor; ammunition is fired using 5.56 mm ballistic cartridge.

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Ammunition may be less effective against heavy clothing, shields, or barricades.
- b. **Weather, Environment Limitations:** Severe winds may effect the accuracy of projectiles
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Projectiles may be lethal if fired directly at individuals at close range.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Alliant Techsystems,  
600 2nd St. NE  
Hopkins, Minnesota 55343  
(612) 931-4149

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** RUBBER-BALL LAUNCHING SYSTEM

**3. Photograph/Description:** A vehicle mounted system which fires up to 1,400 rubber balls under operator-chosen firing sequence. The system consists of two launch units, a control box, wiring, and rubber-ball cartridges. Both launch units are connected to a single control box which is located inside the vehicle and contains: illuminated ON/OFF switches, left hand and right hand Launch Unit control switches, RESET pushbuttons with safety cover, and a FIRE pushbutton for each Launch Unit. Each launch unit contains up to 10 rubber-ball cartridges. Each cartridge contains 70 rubber balls.

**4. History/Background:**

**5. Potential Targets/Applications:**

**6. Primary Users:** Crowd dispersal and riot control

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Projectile impact causes pain and discomfort.

**8. Physical Data**

- a. **Size:** Rubber-Ball Cartridge is 290 mm long and 73 mm in diameter;  
Balls are 19 mm in diameter
- b. **Weight:** Rubber-Ball Cartridge weighs 3.25 kg;  
Balls weigh 16 grams each
- c. **Power Requirements:** 24-Volt dc battery

**9. Performance Characteristics**

- a. **Effect on Target:** Individuals are dispersed due to painful impact of rubber balls.
- b. **Time to Effect:** Instantaneous
- c. **Duration of Effect:** Varies
- d. **Range:** Effective range of 50 to 120 meters. Maximum range of 400 meters. Dispersion produces a 15 meter diameter pattern at 50 meters.

**10. Delivery Means:** Vehicle mounted launching system

**11. Operational Strengths:** Provides operators a means of dispersing a crowd without leaving the vehicle cabin.

**12. Operational Limitations**

- a. **Countermeasures:** Heavy clothing, shields, barricades, trees, dense shrubs

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
May be lethal if head, lungs, heart, or liver are impacted at a range of less than 30 meters.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Alliant Techsystems  
600 2nd St. NE  
Hopkins, Minnesota 55343  
(612) 931-4149

**16. Cost:** RBC-70 and Launcher  
Rubber-Ball Cartridge



**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** THE IN-FORCER (PROPELLANT ASSISTED DOOR RAM)

**3. Photograph/Description:** The In-Forcer is a propellant assisted door ram. The 35 lbs ram uses a propellant cartridge to create an additional 40,000 lbs of force upon impact with the door. Manufacturer claims that the device makes no more noise than a standard door ram and that there is no recoil.

Several ram heads are available:

Bullet - Standard head providing point source delivery good for solid doors, also good for making gun ports in walls

Cylindrical Blunt - Mid-sized area prevents puncture

Square Plate - Designed to prevent puncture of hollow core wooden doors, greatest surface area.

Quarter Turn - Designed to ream out locks or act as a lever between a door and the door frame.

Chisel Wedge - Designed to split wooden surfaces

Fork - Two sharp tines that initiate cutting in steel and steel skinned doors.

Witch's Cap - Variation of the Chisel Wedge, initiates a crack then finishes the breach by fully separating the barrier.

Punch - Hollow punching tool with 0.45 caliber blank charge to punch out locksets. Effective for breaching outward opening doors. Intended for use prior to using the Split Witch's Cap and the Gaff Hook.

Split Witch's Cap - Designed to breach outward opening doors, uses a blank charge to set itself in the door.

Gaff Hook - Also designed to breach outward opening doors, but without a charge

**4. History/Background:**

**5. Potential Targets/Applications:** Residential and commercial doors. Situations involving rapid entry into buildings.

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Defeats residential and commercial locking mechanism by damaging the door locally through impact.

**8. Physical Data**

a. **Size:** Ram unit, Length = 29.63 inch, height = 10 inch, width = 7 inch

b. **Weight:** Ram unit, 36 lbs

c. **Power Requirements:** Propellant cartridge

**9. Performance Characteristics**

a. **Effect on Target:** Defeats residential and commercial doors.

b. **Time to Effect:** Instant

c. **Duration of Effect:** Permanent

d. Range: Intimate contact with the door in necessary

**10. Delivery Means: Hand-operated**

**11. Operational Strengths:**

Provides rapid entry capability into residential and commercial buildings.

**12. Operational Limitations**

a. Countermeasures: Large, heavy objects immediately behind the target door.

b. Weather, Environment Limitations: Extreme cold weather may reduce the peak force generated by the propellant augmented ram, however, propellant would still provide substantial ramming augmentation.

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Re-usable device. 3 year warranty.

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

a. Government:

b. Manufacturer: Fenrir Industries, Inc.  
P.O. Box 2027, Dept. G  
Stamford, CT 06906-2027  
(203) 977-0671

**16. Cost:**

<u>In-Forcer Ram Unit</u>	\$1095
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Bullet

6063 Aluminum	\$359
Steel	\$309
Titanium	\$459

Cylindrical Blunt

6063 Aluminum	\$359
Steel	\$309
Titanium	\$459

Square Plate

6063 Aluminum	\$379
Steel	\$329
Titanium	\$479

Quarter Turn

6063 Aluminum	\$379
Steel	\$329

Titanium	\$479
<u>Chisel Wedge</u>	
6063 Aluminum	\$379
Steel	\$329
Titanium	\$479
<u>Fork</u>	
6063 Aluminum	\$379
Steel	\$329
Titanium	\$479
<u>Witch's Cap</u>	
6063 Aluminum	\$379
Steel	\$329
Titanium	\$479
<u>Punch</u>	
6063 Aluminum	\$379
Steel	\$329
Titanium	\$479
<u>Split Witch's Cap</u>	
6063 Aluminum	\$675
Steel	\$545
Titanium	\$955
<u>Gaff Hook</u>	
6063 Aluminum	\$595
Steel	\$445
Titanium	\$825

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 35 MM MR35 PUNCH

**3. Photograph/Description:** The MR35 PUNCH fires 35 mm non-lethal balls. The weapon has a 5 round magazine. The balls impact the target causing pain and discomfort.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The 35 mm balls impact the individuals causing pain and discomfort.

**8. Physical Data**

**a. Size:** Overall length = 20.39 inch, barrel length = 11.02 inch

**b. Weight:** 2.09 lbs. (empty)

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Causes pain and discomfort.

**b. Time to Effect:** Instantaneous

**c. Duration of Effect:** Seconds to minutes depending on the range from which the balls were launched and the region of the body impacted.

**d. Range:** 25 meters.

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:** Heavy clothes, shield, trees, dense shrubs

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** 5 round magazine.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Century Arms Inc.  
P.O. Box 714  
Dept. LEPN-12  
St. Albans, VT 05748  
Tel: (802) 524-5268  
Fax: (802) 524-5631

**16. Cost:**

MR35 PUNCH	\$349.95
MR35 PUNCH Fixed Stock	\$384.95
5 Round Magazine	\$34.95

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM FEDERAL GAS GUN

**3. Photograph/Description:** The single shot 37/38 mm Federal Gas Gun can operate under double action or single action trigger pull. The barrel latch has right or left hand release for loading the gun. All working parts are case-hardened steel. The receiver, barrel, and barrel carrier are made from high strength aluminum alloy. The stock is molded polyurethane. Fires all standard 37/38 mm rounds.

**4. History/Background:**

**5. Potential Targets/Applications:** Dependent upon the type of round used in the gun.

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent upon the type of round used in the gun.

**8. Physical Data**

- a. **Size:** 705 mm (27.7 inches) long
- b. **Weight:** 1.68 kg (3.7 pounds)
- c. **Power Requirements:** Not applicable

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent upon the type of round used in the gun.
- b. **Time to Effect:** Dependent upon the type of round used in the gun.
- c. **Duration of Effect:** Dependent upon the type of round used in the gun.
- d. **Range:** Dependent upon the type of round used in the gun.

**10. Delivery Means:** Not applicable

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Dependent upon the type of round used in the gun.
- b. **Weather, Environment Limitations:** Dependent upon the type of round used in the gun.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Dependent upon the type of round used in the gun.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Mace Security International  
Federal Laboratories Inc. Division  
160 Benmont Avenue  
Bennington, Vermont 05201  
(800) 639-4530  
(800 442-3823 fax

**16. Cost:**      203-A Gas Gun \$420

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM FEDERAL L6 MULTI-LAUNCHER

**3. Photograph/Description:** The Federal L6 37 mm Multi-Launcher Gas Gun is capable of firing six rounds in less than four seconds without reloading. Fires all standard 37/38 mm rounds. Can accommodate rounds up to 157 mm (6 inches) in length.

**4. History/Background:**

**5. Potential Targets/Applications:** Dependent upon the type of round used in the gun.

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent upon the type of round used in the gun.

**8. Physical Data**

- a. **Size:** 787 mm (31 inches) long
- b. **Weight:** 4.3 kg (9.5 lbs) empty
- c. **Power Requirements:** Not applicable

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent upon the type of round used in the gun.
- b. **Time to Effect:** Dependent upon the type of round used in the gun.
- c. **Duration of Effect:** Dependent upon the type of round used in the gun.
- d. **Range:** Dependent upon the type of round used in the gun.

**10. Delivery Means:** Not applicable

**11. Operational Strengths:** Provides standoff from the target

**12. Operational Limitations**

- a. **Countermeasures:** Dependent upon the type of round used in the gun.
- b. **Weather, Environment Limitations:** Dependent upon the type of round used in the gun.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Dependent upon the type of round used in the gun.

**13. Requirements Documentation:** None

**14. System Developer:**



**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Mace Security International  
Federal Laboratories Inc. Division  
160 Benmont Avenue  
Bennington, Vermont 05201  
(800) 639-4530  
(800 442-3823 fax

**16. Cost:**      L6 Multi-Launcher      \$1,600

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM GAS GUN ADAPTER (FOR FLEXIBLE BATON®)

**3. Photograph/Description:** These rifled adapters are for 37 mm gas guns. They are designed to spin stabilize Flexible Baton® rounds. The adapters are mounted on the muzzle of a gas gun and will not interfere with the firing of conventional 37 mm ammunition. This increases the range of the Flexible Baton® round to 300 feet.

**4. History/Background:**

**5. Potential Targets/Applications:** Riot control, prison unrest, swat/raid teams

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

For the intended ammunition, Flexible Baton®, the lead shot in the fabric bag impacts the subject causing bruises, minor skin abrasions and other injuries associated with a police night stick or baton.

**8. Physical Data**

a. Size:

b. Weight:

c. Power Requirements: None

**9. Performance Characteristics**

a. **Effect on Target:** For the Flexible Baton® round, causes bruises, minor skin abrasions, and other baton type injuries.

b. **Time to Effect:** For the Flexible Baton® round, instantaneous

c. **Duration of Effect:** For the Flexible Baton® round, seconds to minutes depending on the range from which the projectile was launched and the region of the body impacted.

d. **Range:** Ranges are given for all models of the Flexible Baton® ammunition.

Flexible Baton®-12

The close range 12 gauge shell has a range of 10 to 50 feet.

The standard 12 gauge shell has a range of 30 to 100 feet.

Flexible Baton®- 37mm and Flexible Baton®- 40mm

The close range round is good for 10-65 ft.

The low impact round has a range of 35-150 ft.

The standard round has a range of 75-175 ft.

The long range round has a range of 110-220 ft.

The super long range round has a range of 145-250 ft.

The tri-flex and multi-flex rounds both have a range of 100-200 ft.

**10. Delivery Means:** Hand-held launcher

**11. Operational Strengths:** Increases the range of the Flexible Baton<sup>®</sup> round. Does not interfere when firing other rounds.

**12. Operational Limitations**

**a. Countermeasures:** For the Flexible Baton<sup>®</sup> round, heavy clothes, shield, trees, dense shrubs

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
For the Flexible Baton<sup>®</sup> round, fatal or serious injuries can occur if fired at point blank range at the head, neck, or heart.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** MK Ballistic Systems  
2707 Santa Ana Valley Road.  
Hollister, CA 95023  
(408) 636-1504  
(408) 636-8657 fax

**16. Cost:** Several adapter models are available:  
Def-Tec models - 1314, 1315, 1316  
Federal 203a  
Federal 204  
Federal L-6  
Tru-Flight

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM MULTI-ROLE PROJECTILE LAUNCHER, MODEL PL-37

**3. Photograph/Description:** A multi-role projectile launcher conversion kit which modifies existing tear gas launchers such as Federal Laboratories (models: 201Z, 203, 204), Smith & Wesson (models: 201, 276, 277, 209), Def-Tec (model: 1315). The existing conventional tear gas gun is fitted with a precision 37mm rifled bore barrel, quick flip-up ladder type front sight, a quick flip-up aperture rear sight and a raised cheek piece. The assembly can be converted back to the original configuration by refitting the smooth bore barrel. The PL37 fires: kinetic energy batons, irritant smoke, screening smoke and barricade penetrating ammunition. It is capable of firing either Sage Control Ordnance, Inc. or ARWEN 37 mm ammunition.

**4. History/Background:**

**5. Potential Targets/Applications:** Rioting crowds, dangerous assailant, or barricade

**6. Primary Users:** Law enforcement officers

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent upon ammunition used.

**8. Physical Data**

- a. **Size:** 11 inch barrel length, 5 groove rifled, 1:23 right hand twist
- b. **Weight:** Nearly the same as original gun
- c. **Power Requirements:**

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent upon ammunition used.
- b. **Time to Effect:** Dependent upon ammunition used.
- c. **Duration of Effect:** Dependent upon ammunition used.
- d. **Range:** Dependent upon ammunition used.

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations:**

- a. **Countermeasures:** Dependent upon ammunition used.
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
This is a single shot projectile gun. Certain anti-personnel ammunition may be fatal if fired at

close range.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Safety Systems Corporation  
190C Easy Street  
Carol Stream, IL 60188  
(708) 653-1103  
(708) 653-6325 fax

**16. Cost:** Model PL-37 \$990.00

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM MULTI-ROLE PROJECTILE LAUNCHER, MODEL SL-6

**3. Photograph/Description:** A multi-role, six shot projectile launcher able to launch blunt batons, chemical agents, and barricade penetrating projectiles. It can fire 6 shots within 3 seconds. The launcher has a fold-down leaf sight as well as a OEG day/night sight. It fires all 37/38 mm ammunition that are 157.48 mm (6.2 inches) or less in length

**4. History/Background:**

**5. Potential Targets/Applications:** Rioting crowds or a dangerous assailant

**6. Primary Users:** Law enforcement officers

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent upon the ammunition used.

**8. Physical Data**

- a. **Size:** length = 24 inch (stock closed), length = 34 inch (stock open)
- b. **Weight:** 8.5 lbs. (unloaded)
- c. **Power Requirements:** none

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent upon ammunition used.
- b. **Time to Effect:** Dependent upon ammunition used.
- c. **Duration of Effect:** Dependent upon ammunition used.
- d. **Range:** Dependent upon ammunition used.

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations:** This launcher allows the user to fire several shots before needing to reload.

- a. **Countermeasures:** shield or barricade
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Six shot capability

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Distributors:**

Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

**AND**

Safety Systems Corporation  
190C Easy Street  
Carol Stream, IL 60188  
(708) 653-1103  
(708) 653-6325 fax

**16. Cost:**

L6-37 mm (from Mace Security International)

\$1600.00

L6-37 mm (from Safety Systems Corp.)

Prices are confidential but available to military upon request

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM PROJECTILE LAUNCHERS

**3. Photograph/Description:**

Five launchers are available from Carolina Ordnance:

L-6 and L-8 37 mm Multi-Launchers - These launchers are capable of firing six 37 mm rounds in less than three seconds. The difference between the L-6 and the L-8 launchers is in the length of rounds that either can accommodate. The L-6 can accommodate 37 mm rounds up to 6.22 inches long. The L-8 can accommodate 37 mm rounds up to 8 inches long.

37 mm Hand Launchers - This device is a single round, manual launcher. Can be used with a trip wire for early warning purposes.

37 mm Standard Underbarrel Launcher CM 2037 and CM 2037LS - This launcher is a single shot launcher which is designed to mount under the barrel of an AR15, M16, SKS, AK 47, MAK 90. The CM 2037 LS is the long slide model which accommodates long 37 mm rounds.

37 mm Long Slide Shoulder Stock Launcher CM 79LS - This launcher is identical to the CM 2037 LS except that it has a folding stock and a pistol grip for stand alone use.

**4. History/Background:**

**5. Potential Targets/Applications:** Dependent upon ammunition used.

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Dependent upon ammunition used.

**8. Physical Data**

L-6 37 mm Multi-Launchers

- a. Size: Overall length is 31.5 inches with stock open, 20.5 with stock closed
- b. Weight: 9 lbs, unloaded
- c. Power Requirements:None

L-8 37 mm Multi-Launchers

- a. Size: Overall length is 33.5 inches with stock open, 22.5 with stock closed
- b. Weight: 10 lbs, unloaded
- c. Power Requirements:None

37 mm Hand Launchers

- a. Size: Barrel length is 6 inches
- b. Weight: 1.25 lbs, unloaded
- c. Power Requirements:None

37 mm Standard Underbarrel Launcher CM 2037 and CM 2037 LS

- a. Size: Barrel length is 6 inches
- b. Weight: 2.5 lbs, unloaded (2.8 lbs, unloaded for the LS model)
- c. Power Requirements:None

37 mm Long Slide Shoulder Stock Launcher CM 79 LS



- a. Size: Barrel length is 6 inches
- b. Weight: 4.0 lbs, unloaded
- c. Power Requirements: None

#### 9. Performance Characteristics

- a. Effect on Target: Dependent upon ammunition used.
- b. Time to Effect: Dependent upon ammunition used.
- c. Duration of Effect: Dependent upon ammunition used.
- d. Range: Dependent upon ammunition used.

#### 10. Delivery Means: Not applicable

#### 11. Operational Strengths: Dependent upon ammunition used.

#### 12. Operational Limitations

- a. Countermeasures: Dependent upon ammunition used.
- b. Weather, Environment Limitations: Dependent upon ammunition used. launchers.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Dependent upon ammunition used.

#### 13. Requirements Documentation: None

#### 14. System Developer:

#### 15. Manufacturer/Contractor

- a. Government:
- b. Manufacturer: Carolina Ordnance  
1985 Tate Boulevard SE  
Suite 614  
Hickory, North Carolina 28602  
(800) 477-9380  
(704) 345-1836 (fax)

16. Cost:	L-6	\$1,295.00
	L-8	\$1,395.00
	37 mm Hand Launcher	\$50.00
	CM 2037 and CM 2037LS	\$199.00
	CM 79LS	\$249.00

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 40 MM GRENADE LAUNCHER MODEL M203

**3. Photograph/Description:** Grenade launchers are used to propel grenades long distances. This launcher can be easily attached to a M16 series rifle or M4 series carbine.

**4. History/Background:** Standard, field tested item. (Originally developed by AAI)

**5. Potential Targets/Applications:** Military operations, crowd dispersal

**6. Primary Users:** Military, law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent upon the grenade used.

**8. Physical Data**

- a. **Size:** Length = 15 inch, width = 3.3 inch, height = 3.3 inch
- b. **Weight:** 3 lbs (unloaded)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent upon the grenade used.
- b. **Time to Effect:** Dependent upon the grenade used.
- c. **Duration of Effect:** Dependent upon the grenade used.
- d. **Range:** 437 yards (maximum)

**10. Delivery Means:** Hand-held

**11. Operational Strengths:** For M16/M4 mounted M203's, operator can quickly switch to lethal 5.56 mm fire from 40 mm non-lethal round.

**12. Operational Limitations:** High velocity 40 mm ammunition can not be used. Single shot only.

- a. **Countermeasures:** Dependent upon the grenade used.
- b. **Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** Obsolete type classified CS round (M561).

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:** Thomas Miskovich  
ARDEC  
Picatinny Arsenal, NJ  
(201) 724-6074

**b. Manufacturer:** Colt Manufacturing Company, Inc.  
P.O. Box 1868  
Hartford, CT 06144-1868  
(800) 962-2658 or (860) 236-6311

**16. Cost:** M203 Prices available upon military request

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 40 MM HK69A1 GRENADE LAUNCHER

**3. Photograph/Description:** Launcher is designed to fire a variety of low velocity 40 mm grenades. These include CS, non-lethal, and flares.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Military, Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent on the grenade used.

**8. Physical Data**

- a. **Size:** 28.9 inch length (stock out), 18.2 inch length (stock in), 2.2 inch width, 8.0 inch height.
- b. **Weight:** 5.7 lbs. (without magazine)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent on grenade used.
- b. **Time to Effect:** Dependent on grenade used.
- c. **Duration of Effect:** Dependent on grenade used.
- d. **Range:** 400 meters

**10. Delivery Means:** Hand-held

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:**
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Reusable

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Heckler & Koch, Inc.  
21480 Pacific Blvd.  
Sterling, Virginia 20166 USA  
(703) 450-1900  
(703) 450-8160 fax

**16. Cost:**      40 mm HK69A1      \$1,151.44      (Code 099013)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 40 MM MK 19 GRENADE MACHINE GUN MOD 3

**3. Photograph/Description:** The MK 19 is an air-cooled, blowback-operated machine gun. 40 mm grenades are belt fed from the left side of the weapon. Barrel does not overheat with extended use.

**4. History/Background:** Material released for Army use in 1989: HEDP, TP, and dummy cartridges exist. Smoke rounds in development.

**5. Potential Targets/Applications:** Large riot or crowd control

**6. Primary Users:** Military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

**8. Physical Data**

- a. **Size:** Length = 43.1 inch, width = 13.4 inch, and height = 8.8 inch (gun only)
- b. **Weight:** 140.6 lbs (gun, cradle, and tripod)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent on the grenade used.
- b. **Time to Effect:** Dependent on the grenade used.
- c. **Duration of Effect:** Dependent on the grenade used.
- d. **Range:** 2212 meters (max), 1500 meters (point targets, maximum effective range)

**10. Delivery Means:** Tripod or vehicle mounted.

**11. Operational Strengths:** 325-400 shots per minute

**12. Operational Limitations** No current non-lethal round exists for the MK 19.

- a. **Countermeasures:**
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Dependent on the grenade used. 50,000 round weapon life

**13. Requirements Documentation:** USAMPS/USAIS ROC

**14. System Developer:** Department of the Army

**15. Manufacturer/Contractor**

**a. Government:** Mr. Richard Smith  
ARDEC  
DSN 880-6064  
(201) 724-6064

**b. Manufacturer:** SACO  
Saco, ME

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 40 MM M-203 PI GRENADE LAUNCHER SYSTEM

**3. Photograph/Description:** Grenade launchers are used to propel grenades long distances. This launcher can be easily attached to a M16 or carbine rifle.

**4. History/Background:**

**5. Potential Targets/Applications:** Military operations, crowd dispersal

**6. Primary Users:** Military, law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent upon the grenade used.

**8. Physical Data**

- a. **Size:** Length = 12 inch, width = 2.4 inch, height = 3.2 inch
- b. **Weight:** 2.2 lbs. (unloaded)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent upon the grenade used.
- b. **Time to Effect:** Dependent upon the grenade used.
- c. **Duration of Effect:** Dependent upon the grenade used.
- d. **Range:** 437 yards (maximum)

**10. Delivery Means:** Hand-held

**11. Operational Strengths:** Lightweight, can be fired without rifle. Can be used on M16 or carbine rifles or it can be connected to a stock pistol unit for compact deployment without a rifle. Adaptable to several rifles and can be used for various types of grenades (CS, CN, flash/bang distraction, cover smoke)

**12. Operational Limitations:** High velocity 40mm ammunition can not be used.

- a. **Countermeasures:** N.A.
- b. **Weather, Environment Limitations:** High winds and/or heavy rain may decrease the accuracy and/or effectiveness of ammunition.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:**



**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

R/M Equipment.  
6975 N.W. 43 Street  
Miami, Florida 33166  
Tel: (305) 477-9312  
Fax: (305) 477-9620

**16. Cost:**      M-203 PI      \$900

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** TACTICAL DOOR RAMS

**3. Photograph/Description:** These door rams are used to break through doors. The rams are electrically non-conductive and are designed to produce the most kinetic impact while protecting the user from impact stress.

**4. History/Background:**

**5. Potential Targets/Applications:** Gaining rapid access to locked buildings

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The impact of the ram breaks down the door by damaging the lock mechanism and hinges.

**8. Physical Data**

a. **Size:** 30 inches (Tactical Ram I), 40 inches (Tactical Ram II)

b. **Weight:** 35 pounds (Tactical Ram I), 50 pounds (Tactical Ram II)

c. **Power Requirements:** None.

**9. Performance Characteristics**

a. **Effect on Target:** Impact of the ram causes doors or hinges to fail.

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Permanent

d. **Range:** User must be near the door.

**10. Delivery Means:** User swings the ram.

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Reinforced doors

b. **Weather, Environment Limitations:** None

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Reusable.

**13. Requirements Documentation:** None

**14. System Developer:**

Tri-Tech Inc.

4019 Executive Park Boulevard, SE

Southport, NC 28461  
(800)438-7884  
Fax:(910)457-0094

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Tri-Tech Inc.  
4019 Executive Park Boulevard, SE  
Southport, NC 28461  
(800)438-7884  
Fax:(910)457-0094

**16. Cost:** Tactical Ram I \$275.00  
Tactical Ram II \$325.00)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** DOOR JAMB SPREADER

**3. Photograph/Description:** The door jamb spreader uses hydraulic pressure to spread door jambs. The spreader is positioned on the door jamb. By pumping the handle, the spreader generates three tons of force which in turn spreads the door jamb. This spreading releases latch bolts so that access to the room or building is obtained.

**4. History/Background:**

**5. Potential Targets/Applications:** Gaining access to locked rooms or buildings.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

**8. Physical Data**

- a. **Size:** 26 to 46 inches (adjustable)
- b. **Weight:** 17 pounds
- c. **Power Requirements:** None.

**9. Performance Characteristics**

- a. **Effect on Target:** The door jamb is deformed.
- b. **Time to Effect:** Seconds
- c. **Duration of Effect:** As long as spreader is in place.
- d. **Range:** The spreader must be in physical contact with both sides of the door jamb. The spreader is adjustable from 26 inches to 46 inches

**10. Delivery Means:** Hand emplaced and hand operated.

**11. Operational Strengths:** Light weight and portable.

**12. Operational Limitations**

- a. **Countermeasures:** Very strong door jambs, possibly door jambs in concrete or block walls
- b. **Weather, Environment Limitations:** None
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Reusable

**13. Requirements Documentation:** None

**14. System Developer:** Tri-Tech Inc.  
4019 Executive Park Boulevard, SE  
Southport, NC 28461  
(800)438-7884  
Fax:(910)457-0094

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Tri-Tech Inc.  
4019 Executive Park Boulevard, SE  
Southport, NC 28461  
(800)438-7884  
Fax:(910)457-0094

**16. Cost:** \$595.00

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** LOCKBUSTER® TACTICAL ENTRY TOOL

**3. Photograph/Description:** The Lockbuster® is a hand held tool that resembles a hand gun and is used to gain entrance through doors, gates, burglar bars, and burglar bar doors. It uses a 0.27 caliber low velocity blank round to produce 20,000 pounds of force at the point of contact. The tool uses 10 round strip clips so that multiple shots can be made. It takes approximately 2 seconds to recock the gun. The Lockbuster® has three interchangeable heads.

The chisel head is used for shearing bolts.

The hammer head is used to punch out locks up to 1/2 inch in diameter.

The flying chisel head is ideal for defeating deadbolts.

**4. History/Background:**

**5. Potential Targets/Applications:** Gaining access to locked rooms or buildings

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The Lockbuster® uses a gas-driven piston to produce 20,000 pounds of force on the point of contact which can shear bolts or punch locks.

**8. Physical Data**

a. **Size:** 19 inches long(chisel head), 14 inches long(hammer head), 18.35 inches long(flying chisel head)

b. **Weight:** 7.25 pounds(chisel head), 5.3 pounds(hammer head), 6.25 pounds(flying chisel head)

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Destroys locks or hinges

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Permanent

d. **Range:** Must be within 0.5 inches for the chisel head, 2.75 inches for the hammer head, and 3 inches for the flying chisel head.

**10. Delivery Means:** Hand held

**11. Operational Strengths:** Light weight and portable

**12. Operational Limitations**

a. **Countermeasures:** Protect locks or hinges with strong covers

**b. Weather, Environment Limitations:** None.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Reusable, can be fired up to 10 times before loading.

**13. Requirements Documentation:** None

**14. System Developer:** Tri-Tech Inc.  
4019 Executive Park Boulevard, SE  
Southport, NC 28461  
(800)438-7884  
Fax:(910)457-0094

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Tri-Tech Inc.  
4019 Executive Park Boulevard, SE  
Southport, NC 28461  
(800)438-7884  
Fax:(910)457-0094

**16. Cost:** \$1450.00

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** JACKHAMMER MK3-A2 COMBAT SHOTGUN

**3. Photograph/Description:** The Jackhammer MK3-A2 shotgun has a 10 round cassette magazine. The gun has a gas-floating barrel and is capable of semi-automatic or automatic fire.

**4. History/Background:**

**5. Potential Targets/Applications:** Use for firing non-lethal rounds.

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent upon round used.

**8. Physical Data**

- a. **Size:** 31 inches total length, 20.72 inch barrel length, 9.38 inch height, 4.8 inch cassette shroud width, 2.38 inches average width
- b. **Weight:** 10 pounds (loaded)
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent upon round used.
- b. **Time to Effect:** Dependent upon round used.
- c. **Duration of Effect:** Dependent upon round used.
- d. **Range:** Dependent upon round used.

**10. Delivery Means:**

**11. Operational Strengths:** Light weight and has a 10 round cassette.

**12. Operational Limitations**

- a. **Countermeasures:** Dependent upon round used.
- b. **Weather, Environment Limitations:** None
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Has a 10 round cassette.

**13. Requirements Documentation:** None

**14. System Developer:** MARK THREE  
Concepts Graphics Marketing



1410 Central Avenue S.W.  
Albuquerque, NM 87104  
(505)243-4257

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**      **MARK THREE**  
Concepts Graphics Marketing  
1410 Central Avenue S.W.  
Albuquerque, NM 87104  
(505)243-4257

**16. Cost:**      **\$700-\$800**

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M429 GRENADE LAUNCHING ADAPTERS (12 GAUGE OR 37MM)

**3. Photograph/Description:** These adapters allow the user to fire the M429 Thunderflash stun grenade™ type grenades from either a 12 gauge shotgun or a 37mm gas gun.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, hostage rescue

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Dependent on the grenade used.

**8. Physical Data**

- a. **Size:** 3 inch diameter, 8 inch long
- b. **Weight:** 2 pounds
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Dependent on the grenade used.
- b. **Time to Effect:** Dependent on the grenade used
- c. **Duration of Effect:** Dependent on the grenade used
- d. **Range:** 100 meters for most grenades.

**10. Delivery Means:**

**11. Operational Strengths:** Allows for the grenades to be fired from standard law enforcement equipment.

**12. Operational Limitations**

- a. **Countermeasures:** Dependent on the grenade used.
- b. **Weather, Environment Limitations:** Dependent on the grenade used.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Reusable.

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454

Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$195.00 each (12 gauge or 37mm)

**Latest Revision Date:** October 12, 1995

**1. Status:** Near Term

**2. Weapon Name:** BARB WIRE DISPENSER

**3. Photograph/Description:** The Barb Wire Dispenser sends out 450 feet of barbed wire (large saw tooth, concertina wire, not actual barbs). The device requires no energetic material, rather the wire is dispensed via the stored energy of the coiled wire. At a 15 degree elevation angle, the entire 450 feet of wire dispenses in 7 to 8 seconds to form an anti-personnel entangling barrier at a range of 50 to 80 feet.

**4. History/Background:** The Barb Wire Dispenser is an experimental device which was developed circa 1968, but was never Type Classified. No known inventory remaining.

**5. Potential Targets/Applications:** Non-lethal anti-personnel entangler/deterrent

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Provides physical barrier utilizing knife edge 'barbs' which is painful to cross.

**8. Physical Data**

- a. Size: 3.6 inch x 10.25 inch canister holds the coiled wire
- b. Weight: 10 lbs
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Provides physical barrier which is painful to cross.
- b. Time to Effect: 7 to 8 seconds to deploy
- c. Duration of Effect: Duration is equal to the time required to move the barrier out of the way or to cut a path through it.
- d. Range: Device projects the wire 50 to 80 feet when held at a 15 degree elevation angle.

**10. Delivery Means:** Hand-held canister. No fuze or energetic materials.

**11. Operational Strengths:** Provides rapid barrier

**12. Operational Limitations**

- a. Countermeasures: Can be moved out of the way or a path can be cut through the wire.
- b. Weather, Environment Limitations: None
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Would prove to be very injurious or even fatal if personnel were in the path of the deploying wire. Due to a small wire diameter and the resulting limited height, effectiveness as a barrier highly dependent on area to be covered.

**13. Requirements Documentation:** None current.

**14. System Developer:** Out of production.

**15. Manufacturer/Contractor**

**a. Government:** Mr. John Cline  
ARDEC  
DSN 880-6053  
(201) 724-6053  
U.S. Army Armament Research, Development and Engineering Center  
Picatinny Arsenal, NJ

**b. Manufacturer:**

**16. Cost:** To be determined.

**Latest Revision Date:** October 12, 1995

**1. Status:** Near Term

**2. Weapon Name:** ENTANGLEMENTS

**3. Photograph/Description:** A launcher propels four submunitions equally spaced throughout the pattern area. Each submunition contains several spools of concertina wire. Personnel become entangled in the wire. The tires of vehicles will be shredded.

**4. History/Background:**

**5. Potential Targets/Applications:** Protecting an area, forming a rapid barrier

**6. Primary Users:** Military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Victim is restrained by the concertina wire.

**8. Physical Data**

- a. **Size:** Launcher is 2 feet. x 6 feet
- b. **Weight:** 20 lbs.
- c. **Power Requirements:** Electrical power required for initiation.

**9. Performance Characteristics**

- a. **Effect on Target:** Entangles personnel, destroys vehicle tires, entangles drive shaft of vehicle.
- b. **Time to Effect:** On the order of seconds.
- c. **Duration of Effect:** Until wire is cut or removed.
- d. **Range:** 50 meters.

**10. Delivery Means:** Stored in submunitions fired from a launcher.

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** None.
- b. **Weather, Environment Limitations:** None.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:** Alliant Techsystems  
600 Second Street NE

Hopkins, MN 55343-8384

**15. Manufacturer/Contractor**

- a. Government:** Mr. John Cline  
ARDEC  
DSN 880-6053  
(201) 724-6053
- b. Manufacturer:** Alliant Techsystems  
Point of contact:  
Rod Gerdes  
(612) 931-6000.

**16. Cost:** \$35000.00 plus \$3000.00 per year maintenance cost.

**Latest Revision Date:** October 12, 1995

**1. Status:** Near Term (prototypes exist)

**2. Weapon Name:** RESTRAINING (STICKY) FOAM GUN

**3. Photograph/Description:** Sticky foam is an extremely tacky, tenacious material used to entangle and impair an individual. It is stored under pressure and expands over 30 times its stored volume when dispensed. The foam is fired from a gun. The gun is capable of multiple shots and has a range of 35 feet.

**4. History/Background:** The project began in 1992. Law enforcement associations along with the National Institute of Justice developed the requirements for the sticky foam gun. A backpack prototype and a shoulder-slung prototype have been developed.

**5. Potential Targets/Applications:** Crowd control, prison unrest, control of an individual

**6. Primary Users:** Law enforcement, prison officials

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Individuals are entangled and covered with extremely sticky material.

**8. Physical Data**

**a. Size:**

**b. Weight:**

**c. Power Requirements:**

**9. Performance Characteristics**

**a. Effect on Target:** Immobilized

**b. Time to Effect:** On the order of seconds

**c. Duration of Effect:** Until clean-up can take place

**d. Range:** 35 feet

**10. Delivery Means:** Hand-held unit and back pack unit

**11. Operational Strengths:** Portable, multiple shots

**12. Operational Limitations**

**a. Countermeasures:** If the foam contacts the target, it sticks to the target. Lubricants of some sort may prevent the foam from sticking, such as a cooking spray, or heavier mechanical lubricant.

**b. Weather, Environment Limitations:** Clean-up issues.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Prototypes are capable of multiple shots. Takes time and effort to remove foam from people and surroundings. Potentially lethal from suffocation if the foam contacts mouth or face.



**13. Requirements Documentation: None**

**14. System Developer:** Sandia National Laboratories  
Point of Contact  
Steve Scott  
(505) 845-8149

**15. Manufacturer/Contractor**

- a. Government:**
- b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Investigating Development

**2. Weapon Name:** NET BATON ENTANGLEMENT SYSTEM (NET LAUNCHER)

**3. Photograph/Description:** The proposed Net Baton Entanglement System would be integrated and packaged into a device similar to the standard issue PR-24 Baton. The hand-held mechanism would have the capability to launch a sticky net from 0 to 10 meters at a fleeing or attacking suspect. This capability would permit apprehension and reduce the likelihood of confrontation, escape, or possible injury to both the police/soldier and suspect, thereby eliminating the need to apply excessive force.

**4. History/Background:**

**5. Potential Targets/Applications:** Fleeing or dangerous individuals

**6. Primary Users:**

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Sticky net would enclose and constrict individual to allow police to disarm and contain him

**8. Physical Data**

a. **Size:** Not available

b. **Weight:** Not available

c. **Power Requirements:** Not available

**9. Performance Characteristics**

a. **Effect on Target:** Physically restrict individual from movement

b. **Time to Effect:** A few seconds after firing device

c. **Duration of Effect:** Unknown

d. **Range:** 0 to 10 meters

**10. Delivery Means:** A hand-held baton

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Remain more than 10 meters from the officer

b. **Weather, Environment Limitations:** High winds may affect the ability to immobilize an assailant with net entanglement

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The device will fire only once.

**13. Requirements Documentation:**

**14. System Developer:** Alliant Techsystems  
600 Second St. NE  
Hopkins, MN 55343-8384  
(612) 931-4149 phone  
(612) 931-6654 fax

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

**16. Cost:** To be determined

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** CD-12 PORTABLE LIGHT

**3. Photograph/Description:** A low-voltage hand held light rated at 750,000 candlepower. It has a highly focused spot beam which can illuminate objects over a mile away. It can also project an ultra-wide pattern flood beam by flipping a toggle switch. The unit includes: 55 watt flood and 100 watt spot bulbs, rechargeable battery pack, recharger, rubber ring and shoulder strap.

**4. History/Background:**

**5. Potential Targets/Applications:**

**6. Primary Users:** Military, law enforcement officers, fire departments

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

**8. Physical Data**

- a. Size:
- b. Weight:
- c. Power Requirements:

**9. Performance Characteristics**

- a. Effect on Target:
- b. Time to Effect:
- c. Duration of Effect:
- d. Range: 1 mile

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

- a. Countermeasures:
- b. Weather, Environment Limitations:
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Safety Systems Corporation  
190C Easy St.  
Carol Stream, IL 60188  
(708) 653-1103  
(708) 653-6325 fax

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** DASER

**3. Photograph/Description:** Dazzling laser rifle - information has been requested from the developer. The laser rifle does not use a battery pack, rather, it uses special cartridges to generate the dazzling laser effect.

Note that there exists a Dazer prototype which utilizes a battery backpack as the energy supply for the laser effects. More information is being sought on this device also.

**4. History/Background:**

**5. Potential Targets/Applications:** Individuals and crowds

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved through pulsing lights of different colors.

**8. Physical Data**

a. Size:

b. Weight:

c. Power Requirements: Special cartridges

**9. Performance Characteristics**

a. Effect on Target:

b. Time to Effect:

c. Duration of Effect:

d. Range:

**10. Delivery Means:**

**11. Operational Strengths:** Provides standoff from the target

**12. Operational Limitations**

a. Countermeasures: Laser safe eyewear for the specific light frequencies that the laser rifle generates.

b. Weather, Environment Limitations: High moisture environments, fog, heavy rain may affect the transmittance of the laser.

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

**13. Requirements Documentation:** None

**14. System Developer:** LaserMax Inc.  
3495 Winton Place  
Bldg B  
Rochester, NY 14623  
(716) 272-5420  
(716) 272-5427 fax

**15. Manufacturer/Contractor**

**a. Government:** Mr. Lucian Sadowski  
ARDEC  
DSN 880-7072  
(201) 724-7072

**b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** DISORIENTING LIGHT

**3. Photograph/Description:** A flashing bright light source that induces temporary blindness and disorientation. The device employs a pulsed white light (strobe). Operators would wear special goggles that are time-synchronized to the flashes so that their vision is not affected.

**4. History/Background:**

The device is being developed to counter the problem of disorientation of law enforcement officials (SWAT) by current disorienting devices.

**5. Potential Targets/Applications:** Individuals, crowds

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Pulsed, bright light causes disorientation and blindness.

**8. Physical Data**

**a. Size:**

**b. Weight:**

**c. Power Requirements:**

**9. Performance Characteristics**

**a. Effect on Target:**

**b. Time to Effect:**

**c. Duration of Effect:**

**d. Range:**

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:**

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:** Lawrence Livermore National Laboratory



Point of Contact:  
Dr. Harold Levie

**15. Manufacturer/Contractor**

**a. Government:** Mr. Ray Downs  
National Institute of Justice

**b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Near Term (prototypes exist)

**2. Weapon Name:** LR-100 (HAND HELD HIGH INTENSITY LIGHT)

**3. Photograph/Description:** The LR-100 is a high intensity, portable, hand held electronic light source. The device project a narrow, 2,300,00 candlepower beam in excess of one mile. The light can be defused into a variety of spotlight modes. Available with an infrared filter. The light comes with an integral UV filter.

**4. History/Background:** Protected under U.S. Patent 5,036,444

**5. Potential Targets/Applications:** Search and rescue, visual stun

**6. Primary Users:** Military, law enforcement, prison workers

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Uses high intensity light to simulate sunlight. Produces light with a Xenon gas plasma bulb.

**8. Physical Data:**

a. **Size:** 13 inch length x 6.5 inch diameter

b. **Weight:** 3.5 lbs.

c. **Power Requirements:** 10.5 to 15.0 Volt DC power supply

**9. Performance Characteristics**

a. **Effect on Target:** Incapacitation (stun)

b. **Time to Effect:** Instantaneous

c. **Duration of Effect:** Up to 20 min.

d. **Range:** Dependent upon the application (visual stun or search and rescue)

**10. Delivery Means:** Hand-held

**11. Operational Strengths:** Portability, light weight, can be used day or night, 400 hour lamp with elapsed time meter.

**12. Operational Limitations:**

a. **Countermeasures:** Mirrored surfaces reflect light

b. **Weather, Environment Limitations:** Most effective at night, but can be used during the day, stun effect may not be possible in heavy fog. Still useful for search and rescue in heavy fog.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** May cause eye injury at close ranges with direct line of sight into the light.

**13. Requirements Documentation:** None

**14. System Developer:** Lightrays, Ltd.  
Carlsbad, California

Point of Contact:  
Todd D. Spires  
BETAC  
Alexandria, VA  
(703) 824-3195  
e-mail: spires@betac.com

**15. Manufacturer/Contractor**

**a. Government:** Mr Lucian Sadowski  
ARDEC  
(201) 724-6053

**b. Manufacturer:**

**16. Cost:**

**Latest Revision Date: October 12, 1995**

**1. Status: Currently Available**

**2. Weapon Name: MAXA BEAM REMOTE SEARCHLIGHT**

**3. Photograph/Description:** This hand held, battery-powered light is rated at 6 million candlepower. The is purportedly enough light to read a newspaper 1½ miles away. It is equipped with an infrared filter for covert operations, an amber filter for penetration of fog or smoke, a field replaceable lamp, a servo controlled beam spread, and a high impact system storage case.

**4. History/Background:**

**5. Potential Targets/Applications:**

**6. Primary Users:**

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

**8. Physical Data**

**a. Size:**

**b. Weight:** Less than 4 lbs.

**c. Power Requirements:** NiCad Battery (lasts up to 110 min.)  
Gel-Cell Battery (lasts up to 50 min.)

**9. Performance Characteristics**

**a. Effect on Target:**

**b. Time to Effect:** Instantaneous

**c. Duration of Effect:**

**d. Range:** Dependent on the application (visual stun or search and rescue)

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:**

**b. Weather, Environment Limitations:**

Weatherproof for harsh conditions

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Safety Systems Corporation  
190C Easy St.  
Carol Stream, IL 60188  
(708) 653-1103  
(708) 653-6325 fax

<b>16. Cost:</b>	Maxa Beam Remote Searchlight	(Code MBS450)
	NiCad Quick/PS 120 Charger	(Code MBP4200)
	NiCad Trickle Charger	(Code MBP3100)
	NiCad Belt Pack Battery Module	(Code MBP1217)
	Gel-Cell Quick/PS 120 Charger	(Code MBP4110)
	850nm Infrared Filter	(Code MBA1500)
	Amber Filter	(Code MBA1500)
	Large Case	(Code MBA6300)

**Latest Revision Date:** October 12, 1995

**1. Status:** Near Term

**2. Weapon Name:** XM 84 NON-LETHAL STUN GRENADE

**3. Photograph/Description:** The XM 84 Non-Lethal Stun Grenade is a non-lethal, explosive device which will generate intense light and sound. It will generate a one million candlepower light flash and a noise level between 170 and 180 decibels at a five foot distance from the device. The intense flash is intended to cause a temporary blindness with no permanent eye injury. The arming mechanism (fuze) will be comprised of a safety pin/pull ring assembly, a safety lever (spoon), a spring loaded striker assembly, and a percussion primer. The fuze/grenade body assembly will remain intact after operation and will produce no fragmentation. Smoke from the device will not interfere with room clearing operations during the initial 2 seconds after operation.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage rescue, breaking contact

**6. Primary Users:** Military

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved through flash blinding and auditory stun.

**8. Physical Data**

- a. **Size:** 2 inch diameter x 6 inches long
- b. **Weight:** 1.6 lbs (736 grams) total weight
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Visual and auditory stun
- b. **Time to Effect:** Instant (device has a  $2 \pm 0.2$  seconds delay)
- c. **Duration of Effect:** Minutes
- d. **Range:** One million candlepower light flash and 170 to 180 decibel sound level is produced at a range of five feet from the device

**10. Delivery Means:** Hand-thrown

**11. Operational Strengths:** Rapidly stuns individuals and groups

**12. Operational Limitations**

- a. **Countermeasures:** Hearing protection and dark goggles or glasses (partial countermeasures)
- b. **Weather, Environment Limitations:** None
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

At close ranges, the decibel level and flash brightness may cause some temporary damage to hearing and to sight.

**13. Requirements Documentation: USAMPS ORD, Ltd**

**14. System Developer:** PM-Small Arms  
U.S. Army ARDEC,  
Picatinny Arsenal, New Jersey 07806-5000

**15. Manufacturer/Contractor**

**a. Government:** Mr. Alan Li  
ARDEC  
(201) 724-4042

**b. Manufacturer:** Undetermined

**16. Cost:** Undetermined

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 25 DISTRACTION DEVICE\*

**3. Photograph/Description:** This device produces a very loud report and then a brilliant flash of light. The device has a gun-steel body which protects it from enemy fire. It can also be thrown through most windows. It has a sound level of 174.5 db at 5 feet and a light level of 2,420,000 candela. The device can also be reloaded and reused up to 20 times.

**4. History/Background:**

**5. Potential Targets/Applications:** Hostage situations, SWAT operations

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The device produces a loud report (174.5 db at 5 feet) and a bright flash (2,420,000 candela)

**8. Physical Data**

a. **Size:** Length = 5.73 inch, diameter = 1.88 inch

b. **Weight:** 25.7 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** May cause confusion. Loud bang could cause temporary hearing loss. Bright flash may impair vision.

b. **Time to Effect:** Very short time

c. **Duration of Effect:** On the order of seconds

d. **Range:** 174.5 db at 5 feet

**10. Delivery Means:** Hand thrown with a 1.5 second delay

**11. Operational Strengths:** No submunitions

**12. Operational Limitations**

a. **Countermeasures:** Ear plugs, very dark glasses, welding mask, torch cutting goggles

b. **Weather, Environment Limitations:**

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Can be reloaded and reused up to 20 times.

**13. Requirements Documentation:** None



**14. System Developer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**15. Manufacturer/Contractor**

- a. Government:**
- b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available (prototype)

**2. Weapon Name:** SMALL ARMS / LASER M203 WEAPONS SYSTEM

**3. Photograph/Description:** Adjunct to the infantryman's rifle for suppressing / neutralizing threat fire control optics, night vision devices, and direct view optics. Prototypes utilize an AR-15 rifle and PVS-4 night vision with a battery pack and an M203-like laser source.

**4. History/Background:** A prototype device was utilized in the USAIS Concept Evaluation Program (CEP) of the Infantry Self-Defense System (DAZER). There have been 1000 rounds fired in field tests. Final design/contractor have not been determined.

**5. Potential Targets/Applications:** Direct view optics, night vision devices, and threat fire control optics.

**6. Primary Users:** Military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Laser induced optical suppression.

**8. Physical Data**

**a. Size:**

Laser transmitter - 1.7 inch diameter, 16 inch length

Electronics - 6.5 inch width, 7.4 inch length, 1.5 inch diameter

1000 shot battery - 3 inch diameter, 4 inch length, 1.5 inch diameter

Aim point diode assembly - 1 inch diameter, 3 inch length

**b. Weight:** 12.5 pound system (3 pound laser transmitter + battery, electronics, aim point diode assembly)

**c. Power Requirements:** 9.2 pound power system (battery and electronics)

**9. Performance Characteristics**

**a. Effect on Target:** \*

**b. Time to Effect:** Immediate

**c. Duration of Effect:** \*

**d. Range:** \*

\* Many performance characteristics are classified

**10. Delivery Means:** M16 rifle with adjunct M203-like laser system and accompanying battery and electronics pack

**11. Operational Strengths:** Non-lethal threat suppression as well as target illumination.

**12. Operational Limitations**

- a. Countermeasures: Mirrored surfaces.
- b. Weather, Environment Limitations: Range/effects limited by adverse weather conditions.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Legal issues associated with use of lasers against eyes. Potential for permanent eye damage at close ranges with laser system. The prototype can fire 1000+ shots with current battery.

**13. Requirements Documentation: None**

**14. System Developer:** Allied Signal Aerospace  
Teterboro, NJ 07608

**15. Manufacturer/Contractor**

- a. Government: Mr. Joseph Urbanik  
CERDEC-ASD  
(Communications Electronics RDEC)  
DSN 987-3398  
(908) 427-3398
- b. Manufacturer: Mr. Barry Ellis  
Marketing Manager (per 1993 brochure)  
(201)393-3502

**16. Cost:** To be determined.

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** LASER COUNTERMEASURE SYSTEM (LCMS) AN/PLQ-5

**3. Photograph/Description:** Man-portable, multi-role, laser illuminator and optical threat negation system.

**4. History/Background:** USAIS proponent; PM-NVEO developed

**5. Potential Targets/Applications:**

**6. Primary Users:** Military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Laser induced optical suppression.

**8. Physical Data**

- a. Size: \*
- b. Weight: \*
- c. Power Requirements: \*

**9. Performance Characteristics**

- a. Effect on Target: \*
  - b. Time to Effect: \*
  - c. Duration of Effect: \*
  - d. Range: Effective range of 2 kilometers.
- \* Performance and physical parameters may be classified.

**10. Delivery Means:** Adjunct to M16 rifle, and to other platforms including Bradley fighting vehicle, HMMWV, and small boats.

**11. Operational Strengths:** Multi-role laser and force multiplier

**12. Operational Limitations**

- a. Countermeasures: Mirrored surfaces, specific wavelength(s) filters.
- b. Weather, Environment Limitations: Range limited by adverse weather such as rain, fog, or snow.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Legal / policy issues associated with use of lasers in general. Potential for permanent eye damage as function of range.

**13. Requirements Documentation:** None

**14. System Developer:** Lockheed Martin-Sanders Division (per 1994 brochure)  
(formerly Lockheed Sanders, Inc.)  
P.O. Box 868  
Nashua, NH 03061-0868

**15. Manufacturer/Contractor**

**a. Government:** PM-NVEO or  
Mr. Joseph Urbanik  
CERDEC  
(Communications Electronics RDEC)  
DSN 987-3398  
(908) 427-3398

**b. Manufacturer:**

**16. Cost:** To be determined.

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** SET BEAM HIGH INTENSITY HAND-HELD SEARCHLIGHT SYSTEM / NON-LETHAL STROBE LIGHT BEAM KIT

**3. Photograph/Description:** Six million candela of light power with effective range at high strobing level of 100 yards. Narrow beam illumination range to 1 kilometer. Utilizes 15 to 20 amp xenon flashcubes. Three modes of operation can be employed: zoom, flash, and spotting. It may be fitted with an optional IR filter (830 nm cut-on wavelength).

**4. History/Background:** Successfully used on a helicopter platform in Gaza Strip for crowd control.

**5. Potential Targets/Applications:** Crowd control/dispersion from rotary wing aircraft. Prototype development proceeding for potential infantry use with the M16.

**6. Primary Users:** Military, law enforcement.

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation /disorientation through rapidly pulsed (stroboscopic) high power light source. (No formal government tests conducted to date)

**8. Physical Data**

**a. Size:** Hand-held

**b. Weight:** 5.9 kg

**c. Power Requirements:** 12 volts dc battery, or optional 110 volt or 220 volt ac.

**9. Performance Characteristics**

**a. Effect on Target:** Temporary optical incapacitation / disorientation

**b. Time to Effect:** Immediate

**c. Duration of Effect:**

**d. Range:** 100 yards for disorientation and 1 kilometer for illumination

**10. Delivery Means:** Current beam kit is helicopter mounted. M16 version of strobe light is being investigated by CERDEC/ARL.

**11. Operational Strengths:** Ruggedized. Optional packages: back carrying pack, tripod and remote control unit.

**12. Operational Limitations**

**a. Countermeasures:** Mirrored surfaces reflect.

**b. Weather, Environment Limitations:** Reduced effects in adverse weather such as rain, fog, or snow. Effect may not be possible in heavy fog.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
May cause eye injury at close ranges and with direct line-of-sight into the light source.

**13. Requirements Documentation: None**

**14. System Developer: I.T.L., Inc.**

**15. Manufacturer/Contractor**

**a. Government:** Mr. Joseph Urbanik  
CERDEC  
(Communications Electronics RDEC)  
DSN 987-3398  
(908) 427-3398

**b. Manufacturer: I.T.L., Inc.**

**16. Cost: \$5,940.00**

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available (prototypes)

**2. Weapon Name:** SABRE 203 (SOME INFORMATION CONTAINED IN THIS WRITE-UP MAYBE CONSIDERED PROPRIETARY INFORMATION)

**3. Photograph/Description:** Optical & IR laser grenade shell cartridge compatible with 40 mm M203. Multi-shot, clip-on triggering transmitter fits below and onto M203 grenade launcher handgrips.

**4. History/Background:** Initiated as a SBIR by HQ-DNA in response to a USAF statement of need for incremental force response options for nuclear security forces. Resulted in active denial proof-of-principle prototypes.

**5. Potential Targets/Applications:** Non-lethal, anti-personnel optical deterrent for area denial.

**6. Primary Users:** Military, law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Laser induced visual countermeasure.

**8. Physical Data**

- a. **Size:** 40 mm diameter, 4 inch laser grenade cartridge
- b. **Weight:** 0.5 pound laser grenade cartridge (additional weight form triggering transmitter)
- c. **Power Requirements:** Self-contained 1.25 volt batteries.

**9. Performance Characteristics**

- a. **Effect on Target:** \*
  - b. **Time to Effect:** Immediate
  - c. **Duration of Effect:** \*
  - d. **Range:** \*
- \* Many performance characteristics may be classified.

**10. Delivery Means:** Current prototypes require loading into 40 mm M203 Grenade launcher with clip-on triggering transmitter.

**11. Operational Strengths:** Light weight, portable

**12. Operational Limitations**

- a. **Countermeasures:** Mirrored surfaces, specific wavelength filters.
- b. **Weather, Environment Limitations:** Range/effects degraded by adverse weather such as rain, fog, or snow.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Legal/policy issues associated with the use of lasers against eyes. Potential for some permanent



eye damage at close ranges with laser systems. Laser cartridge is not launched and no case is ejected, therefore the whole laser cartridge must be removed in order to fire standard 40 mm grenades from the M203 grenade launcher.

**13. Requirements Documentation: USAF Statement of Need.**

**14. System Developer:** Science & Engineering Associates, Inc.  
6100 Uptown Blvd. NE, Suite 170  
Albuquerque, NM 87110

**15. Manufacturer/Contractor**

**a. Government:** Mr. Lucian Sadowski  
ARDEC  
DSN 880-7072  
(201) 724-7072

**b. Manufacturer:** Mr. J.D. German  
Science & Engineering Associates, Inc.  
6100 Uptown Blvd. NE, Suite 170  
Albuquerque, NM 87110  
(505) 884-2300

**16. Cost:**

**Latest Revision Date:** October 13, 1995

**1. Status:** Currently Available

**2. Weapon Name:** FOGGER PORTABLE SMOKE GENERATOR

**3. Photograph/Description:** The Fogger Portable Smoke Generator utilizes a small internal combustion engine to provide the power for pumping and heating the CN or CS. The smoke generator produces a dense, lingering smoke which is effective for CN or CS dispersion or for screening.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

- a. **Size:** 508 mm high x 355 mm wide x 660 mm long
- b. **Weight:** 13.6 kg filled with agent and fuel, can hold 2.8 liters of agent
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing,, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested, reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.
- c. **Duration of Effect:** Approximately 30 minutes
- d. **Range:**

**10. Delivery Means:** Hand-held device delivers the CN or CS smoke

**11. Operational Strengths:** Can cover a large area

**12. Operational Limitations**

- a. **Countermeasures:** Gas masks, wet rags
- b. **Weather, Environment Limitations:** High winds and/or heavy rain may decrease the

effectiveness and delivery of the CN and CS.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

At close ranges, the CN and CS dosage may be dangerously high. May not dispense CN and CS quickly enough for some situations. Operators are put in close proximity to the CN and CS smoke, probably require gas masks.

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201  
(802) 447-7713  
(802) 442-3823 fax

**16. Cost:**

**Latest Revision Date:** October 13, 1995

**1. Status:** Currently Available

**2. Weapon Name:** MDR-1A MOTION DETECTION RADAR UNIT

**3. Photograph/Description:** This radar unit utilizes a transmitter, receiver, and signal processor to detect motion through walls. It operates within the band of 902 to 928 MHZ. The system works by sending a signal into a room. Everything inside the room reflects the signal back. Motion is detected by any change in the voltage of the reflected signal. This is then converted to an audio tone. Any motion in the room results in a change in the tone. With a relatively short training period, the operator may distinguish the difference between a man walking and say a dog walking. Such a difference would result in a different tone being transmitted. The unit works better when there are a lot of objects reflecting in the area. In wide open spaces, it may detect a hand moving at 20 to 30 feet. From 3 feet. away, it may detect someone breathing.

**4. History/Background:**

**5. Potential Targets/Applications:** Determining the location of a dangerous assailant inside a building without giving away an officer's location

**6. Primary Users:**

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

There are two outputs from the radar. The first is a relay which is triggered anytime there is motion detected above the adjustable threshold setting. The second is an audio tone which varies in pitch proportional to the motion that is being detected. The tone is at 60 Hz when there is no motion and rises up to 300 Hz as motion is detected. As the tone varies in pitch, it gives a relative indication as to the distance to the radar, and speed that the person is moving. One or more portable commercial band radios can be controlled by the MDR relay for up to a mile away to detect movement in the area of the radar.

**8. Physical Data**

- a. Size: Fits inside a briefcase
- b. Weight:
- c. Power Requirements:

**9. Performance Characteristics**

- a. Effect on Target: None
- b. Time to Effect: Instantaneous
- c. Duration of Effect:
- d. Range:  $\pm 45$  degrees from beam's center;  
In the open, range is 100 feet.  
Through 6 inches of steel reinforced concrete, range is 30 feet.  
Through 3 feet of concrete block wall, range is 20 feet.  
MDR-1A works better when there are a lot of objects reflecting in the area. In

wide open spaces, it may detect a hand moving at 20 to 30 feet. From 3 feet. away, it may detect someone breathing.

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:**

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Hughes Missile Systems Company  
Pomona, CA

<b>16. Cost:</b>	Base price	\$2500
	With all accessories	\$4500

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** MK XII-D CN/CS FOG GENERATOR

**3. Photograph/Description:** The MK XII-D Pepper Fog Generator uses extreme heat to vaporize liquid formulations of CN or CS. It is powered by a resonant pulse jet engine and it runs approximately 40 minutes on a tank of gasoline. It is capable of producing 100,000 cubic feet of irritant in 26 seconds. The device can be carried using a shoulder strap or mounted on a vehicle. It is very effective in controlling large outdoor crowds.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

**a. Size:** Length = 52 inch, height = 14.5 inch, width = 9.5 inch

**b. Weight:** 19 lbs empty, 27 lbs full

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduces the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes.

**d. Range:**

**10. Delivery Means:**

**11. Operational Strengths:** Quick acting agents.

**12. Operational Limitations**

- a. Countermeasures: Gas mask, wet rags (wet rags leave eyes unprotected)
- b. Weather, Environment Limitations: The agents are susceptible to wind patterns and heavy rainfall. Operator may be exposed to the agent if he is downwind of the target.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
User would need to wear protective clothing and a gas mask

**13. Requirements Documentation: None**

**14. System Developer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**15. Manufacturer/Contractor**

- a. Government:
- b. Manufacturer:

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** MK XII-D PEPPER FOG GENERATOR

**3. Photograph/Description:** The MK XII-D Pepper Fog Generator uses extreme heat to vaporize liquid formulations of smoke. It is powered by a resonant pulse jet engine and it runs approximately 40 minutes on a tank of gasoline. It is capable of producing 100,000 cubic feet of smoke in 26 seconds. The device can be carried using a shoulder strap or mounted on a vehicle. It is very effective in controlling large outdoor crowds.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Smoke hinders vision and this can disorient individuals/crowds. Pepper fog is an inflammatory agent which causes swelling and irritation of the eyes which causes a temporary blindness, which in turn can cause disorientation. If the pepper fog is inhaled, the individual/crowd is also incapacitated due to the swelling of the membranes in the respiratory tract which causes difficulty in breathing and reduces the level of physical exertion that the individual/crowd can sustain.

**8. Physical Data**

- a. **Size:** Length = 52 inch, height = 14.5 inch, width = 9.5 inch
- b. **Weight:** 19 lbs empty, 27 lbs full
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Interfere with vision, create disorientation. Swelling and irritation of the eyes and if inhaled causes swelling of the mucous membrane.
- b. **Time to Effect:** Short period of time
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:**

**10. Delivery Means:**

**11. Operational Strengths:** No harmful effects.

**12. Operational Limitations**

- a. **Countermeasures:** Gas mask, wet rags (wet rags leave the eyes unprotected)
- b. **Weather, Environment Limitations:** Smoke is susceptible to wind patterns and heavy



rainfall. Operator may be exposed to the smoke if he is downwind of the target.

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:

User may need to wear a gas mask

**13. Requirements Documentation: None**

**14. System Developer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**15. Manufacturer/Contractor**

a. Government:

b. Manufacturer:

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** RIOT KIT

**3. Photograph/Description:** A complete assembly of one gas gun, fourteen projectiles, four Han-Ball grenades, and nine military type grenades. The standard kit comes in two configurations, 535CS and 235CN. The contents of either kit can be custom ordered to meet particular needs.

**4. History/Background:**

**5. Potential Targets/Applications:** Dependent upon which projectile is used from the kit. Could vary from individuals to crowds.

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Dependent upon which projectile is used from the kit. Incapacitation could be achieved through tearing and irritation via the CN and CS or impact from the wood baton, rubber baton, or sting bag rounds.

**8. Physical Data**

a. Size:

b. Weight:

c. Power Requirements:None

**9. Performance Characteristics**

a. Effect on Target:Dependent upon which projectile is used from the kit.

b. Time to Effect: Dependent upon which projectile is used from the kit.

c. Duration of Effect: Tens of minutes for the CN and CS. Seconds to minutes for the impact round (i.e. wood baton, rubber baton, sting bag).

d. Range: Dependent upon which projectile is used from the kit.

**10. Delivery Means:** 37 mm gas gun

**11. Operational Strengths:** Dependent upon which projectile is used from the kit.

**12. Operational Limitations**

a. Countermeasures: Gas masks, wet rags for the CN and CS. Heavy clothing, shields, trees, dense shrubs for the impact devices.

b. Weather, Environment Limitations:High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS.

c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: At close ranges, the CN and CS dosage may be dangerously high. Also, at close ranges, the

impact rounds can be lethal.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201  
(802) 447-7713  
(802) 442-3823 fax

**16. Cost:**

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** WILEY NET GUN

**3. Photograph/Description:** Commercially available item used to capture animals without injury. Special bolt action weapon utilizes a gas chamber, four barrels, four net canisters, and projectors. Recoil is similar to that of a 12 gauge shotgun.

**4. History/Background:** Item produced by Exotic Game & Gun Ranch Co. (Wiley & Sons, Inc.) with claimed sales to cities, states, wildlife parks and the military. Used to non-lethally, non-chemically capture and move cats, dogs, livestock, deer, exotic animals. (Note: There is at least one other known non-lethal animal control net weapon, the "Koda Net", not associated with this producer.)

**5. Potential Targets/Applications:** Fleeing individuals

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Entanglement by a 10 foot by 10 foot net.

**8. Physical Data**

- a. **Size:** Net gun (46 inches), Net (10 foot by 10 foot)
- b. **Weight:** Net Gun (8 lbs. 12 ounces), System weight with gas chamber, four barrels, net canisters, projector, and net (14 lbs.)
- c. **Power Requirements:** Special crimped 30-06 blank cartridge.

**9. Performance Characteristics**

- a. **Effect on Target:** Non-lethal immobilization by entanglement.
- b. **Time to Effect:** Seconds
- c. **Duration of Effect:** Unknown against persons.
- d. **Range:** 10 to 60 feet

**10. Delivery Means:** Special dedicated weapon with a 30-06 special crimped blank. Has been successfully fired from the shoulder or hip, and from moving vehicles and helicopters against moving game.

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Unknown effectiveness against human targets.
- b. **Weather, Environment Limitations:** To be determined.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

Dedicated, heavy weapon. Single shot.

**13. Requirements Documentation: None**

**14. System Developer:** Wiley & Sons, Inc.  
Exotic Game & Ranch  
Route 1, Box 303  
Wills Point, TX 75169

**15. Manufacturer/Contractor**

**a. Government:** No applicable DoD agency point of contact. Mr. K Collins of ERDEC has most familiarity with this item/manufacturer, but there is no DoD developer.

**b. Manufacturer:** Wiley & Sons, Inc.  
Exotic Game & Ranch  
Route 1, Box 303  
Wills Point TX 75169

**16. Cost:** To be determined

**Latest Revision Date:** October 14, 1995

**1. Status:** Near-Mid Term (prototype), Small Business Innovation Research (SBIR) Ph. II developmental item.

**2. Weapon Name:** STING NET (OPTIONS: SNARE NET & STICKY NET)

**3. Photograph/Description:** ARDEC managed SBIR Phase II effort by Foster-Miller, Inc. to develop a 40 mm ballistically deployed sting-net munitions compatible with the 40 mm M203 Grenade Launcher. Present configuration separates upon launch into two projectiles connected by a tether. Lead projectile acts as an impact switch which sends electrical signal down the tether to the net carrier projectile, energetically deploying an 8 foot diameter net via a pyrotechnic spreader gun mechanism. High voltage electric stun ("sting") feature has not yet been incorporated into gun-launched design. A one-piece projectile with an optical proximity fuse is also being investigated, as is firing from rifled weapons (spinning munitions).

A separate SBIR Phase I effort is in progress to develop a field-selectable (tunable) sting-net to turn the sting feature on or off prior to loading into the weapon. Other Foster-Miller, Inc. concepts include Snare-Net (basic entanglement only) and Sticky Net (snare-net with contact adhesive).

**4. History/Background:** Spin-off of original DARPA funded effort managed by ERDEC. ERDEC/ARL are now pursuing anti-material (vehicle) envelopment, while ARDEC is pursuing personnel entanglement.

**5. Potential Targets/Applications:** Potential use against fleeing individuals, and to apprehend hostile individuals.

**6. Primary Users:** Military and law enforcement (law enforcement weapons are smooth bore, the military weapon, M203, is rifled)

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Entanglement by 8 foot to 10 foot diameter net with additional high voltage electric stun immobilization feature (pre-set prior to firing).

**8. Physical Data**

- a. **Size:** 40 mm diameter
- b. **Weight:** To be determined (estimated at 0.75 to 1.0 lbs.)
- c. **Power Requirements:** Investigating use of standard M118 and M195 40 mm cartridge cases with modified propellant loads.

**9. Performance Characteristics**

- a. **Effect on Target:** Non lethal immobilization by entanglement and electric stun.
- b. **Time to Effect:** Seconds
- c. **Duration of Effect:** To be determined (electric sting is longest effect, basic snare is shortest).
- d. **Range:** 5 to 30 meters.

**10. Delivery Means:** Modified 40 mm cartridge case load fired from 40 mm M203 Grenade Launcher.

**11. Operational Strengths:** Will require no modification to standard weapon system (except potentially an attached sight due to different trajectory). Allows for near instantaneous switchover to lethal 5.56 fire from M16 Rifle/M4 Carbine. Optional field tunable feature under investigation to select on/off (and possibly high/low) electric stun feature based on scenario. Unlike other net systems (e.g., for animal control), the Sting-Net munitions net will remain undeployed until projectile fuse impacts (present design) or senses target (improved design) preventing snagging in-flight, and enabling longer ranges.

**12. Operational Limitations**

- a. Countermeasures:** Without additional immobilization features (stun or sticky), target may pull net off or not be detained for sufficient time (mission dependent).
- b. Weather, Environment Limitations:** To be determined.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Single shot.

**13. Requirements Documentation:** None

**14. System Developer:** DoD:  
ARDEC  
AMSTA-AR-CCL-E  
Picatinny Arsenal, NJ 07806-5000

Contractor:  
Foster-Miller, Inc.  
350 Second Ave.  
Waltham, MA 02154-1196

**15. Manufacturer/Contractor**

- a. Government:** Mr. John Cline  
ARDEC  
(207)724-6053  
DSN 880-6053  
FAX: DSN 880-7068
- b. Manufacturer:** Mr. Arnis Mangolds  
Foster- Miller Inc.  
(617)890-3200  
FAX: (617)890-3489

**16. Cost:**

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** LES 117-1 LAW ENFORCEMENT MODEL NETGUN

**3. Photograph/Description:** The Netgun is used to capture a fleeing or stationary subject (human or animal) by using a 8 foot by 8 foot net. The Netgun has four barrels each of which fires a padded weight. Each weight is attached to the net at one of four corners. When fired, the weights wrap around the subject and entangles the subject in the net. The weights are propelled by a blank cartridge.

**4. History/Background:**

**5. Potential Targets/Applications:** Subdue individuals

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Individual is entangled by an 8 foot by 8 foot nylon net.

**8. Physical Data**

- a. **Size:** Net (8 feet by 8 feet), length of gun is 44 inches
- b. **Weight:** Overall weight is 16.5 pounds
- c. **Power Requirements:** Wadless blank rounds

**9. Performance Characteristics**

- a. **Effect on Target:** Net entangles subject.
- b. **Time to Effect:** Seconds
- c. **Duration of Effect:** Subject is effected until net is removed.
- d. **Range:** 15 to 40 feet

**10. Delivery Means:** The Netgun is fired in the same manner as a standard shotgun.

**11. Operational Strengths:** The net is reusable.

**12. Operational Limitations**

- a. **Countermeasures:** Given sufficient time, a human subject may be able to remove the net.
- b. **Weather, Environment Limitations:** Wind may effect the trajectory of the net.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The Netgun fires one net per shot. Even though the net is reusable, it may take substantial time to reload the net.

**13. Requirements Documentation:** None



**14. System Developer:** CSI (Capture Systems Inc.)  
31518 Anacapa Dr.  
Malibu, CA 90265  
(800)350-9890  
Fax:(310)457-3622

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** CSI (Capture Systems Inc.)  
Kent Krings (Sales Manager)  
31518 Anacapa Dr.  
Malibu, CA 90265  
(800)350-9890  
Fax:(310)457-3622

**16. Cost: \$2895.00**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** IMMOBILIZER, SYRINGE PROJECTOR GUN

**3. Photograph/Description:** Gas powered projector gun propels an automatic syringe. Syringe may be filled with 1-3 cubic centimeters of any liquid. Syringe injects liquid upon contact with target. The gun must be reloaded with syringe and gas cartridge after each shot.

**4. History/Background:**

**5. Potential Targets/Applications:** Dangerous assailant or wild animal

**6. Primary Users:** Law enforcement officers, sky marshals

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Syringe injects liquid into assailant. Liquid may be a chemical substance which enters bloodstream and acts as a depressing agent.

**8. Physical Data**

- a. **Size:** Approximately 7.5 inch long
- b. **Weight:** Approximately 1 lb 12 ounce
- c. **Power Requirements:** Gas cartridges

**9. Performance Characteristics**

- a. **Effect on Target:** Temporarily incapacitates assailant
- b. **Time to Effect:** Depends upon syringe contents
- c. **Duration of Effect:** Varies with chemical substance used and the targeted individual.
- d. **Range:** 70 feet

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Shield, very heavy clothing, trees, dense shrubs
- b. **Weather, Environment Limitations:**
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
The gun must be reloaded with a new syringe and gas cartridge after each shot. There is a risk of an overdose of chemical agent which could result in death. An antidote applicator should be administered as soon as the individual has been apprehended and put under control.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** International Logistics Systems, Inc.  
234 McLean Blvd. (Rout 20 South)  
Paterson, N.J. 07505-1295  
(201) 881-0001  
(201) 357-0077 fax

<b>16. Cost:</b>	Immobilizer Gun	\$895	(Code 7525-01)
	6 Syringes(unfilled)	\$100	(Code 7525-02)
	6 Gas Cartridges	\$ 50	(Code 7525-03)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** FEDERAL LABORATORIES' MODEL 620 OC/CS AEROSOL GRENADE

**3. Photograph/Description:** This grenade contains a combination of OC and CS. The OC makes up 6% of the contents and the CS makes up 2.5% of the contents. The grenade has a fuse delay time of 1 to 2 seconds, and discharges an aerosol fog for 3 seconds. This grenade can be either hand thrown or launched.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation using CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

Incapacitation using OC is achieved by the burning sensation and the inflammation of the eyes and eyelids, nasal membranes, and respiratory (if inhaled). Temporary blindness may result due to eyelids swelling shut and/or involuntary closing of the eyes.

**8. Physical Data**

**a. Size:**

**b. Weight:** 8 ounces (total weight)

**c. Power Requirements:** None

**9. Performance Characteristics**

**a. Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested. Reduced the level of physical exertion that the individual can sustain.

**b. Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

**c. Duration of Effect:** Approximately 30 minutes. Once fired, the projectiles discharge chemical agent for 3 seconds.

**d. Range:**

**10. Delivery Means:** Hand thrown or launched

**11. Operational Strengths:** Quick acting agents

## **12. Operational Limitations**

**a. Countermeasures:** CS or OC effectiveness are significantly reduced by a gas mask and wet rags (wet rags leave eyes unprotected). The OC will still irritate exposed skin.

**b. Weather, Environment Limitations:** CS and OC are susceptible to wind patterns, operator may be exposed to the agent if he is downwind from the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CS and OC dosage may be dangerously high.

## **13. Requirements Documentation: None**

## **14. System Developer:**

## **15. Manufacturer/Contractor**

### **a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

**16. Cost:** 620 OC/CS Aerosol Grenade \$35.75 (Code 108001)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** T-16 FLAMELESS EXPULSION GRENADE (OC, CS, OR CN)

**3. Photograph/Description:** This grenade has a cylindrical ABS plastic body and contains pulverized chemical agents. After a one second delay, a carbon dioxide cartridge at the center of the grenade disperses the irritant through two ports along the side of the grenade. This grenade uses no pyrotechnics. It can be used in indoor and outdoor situations. The T-16 grenade will fill a 10 foot x 10 foot x 20 foot room in approximately five seconds. As a result of the T-16 grenade's design, it may also have erratic movements when deployed on hard surface areas such as concrete which restricts the throwback potential.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal, situations where pyrotechnic grenades can not be used.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The grenade can deliver CS or CN. Incapacitation using CS or CN is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** 7.5 inch length x 1.65 inch diameter

b. **Weight:** 9.31 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** Approximately 30 minutes.

d. **Range:** The grenade will fill a 10 foot x 10 foot x 20 foot room in 5 seconds

**10. Delivery Means:** Grenade is hand thrown and the chemical agents are discharged in 3 to 5 seconds.

**11. Operational Strengths:** Provides standoff for operator.

## **12. Operational Limitations**

- a. Countermeasures:** Gas masks, wet rags (wet rags leave eyes unprotected).
- b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN and CS. Operator may be exposed to the agent if he is downwind of the target. Extremely cold temperatures may reduce the rate at which the agent is discharged because of the drop in pressure inside the carbon dioxide cartridge (gas pressure is proportional to temperature). This temperature limitation may be avoided if the device is kept protected and warm, such as stored next to the body under winter clothing until the device is to be operated.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** At close ranges, the CN and CS dosage may be dangerously high.

## **13. Requirements Documentation: None**

**14. System Developer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

## **15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

<b>16. Cost:</b>	T-16 (CN	(Code 2041)
	T-16 (CS)	(Code 2042)
	T-16 (OC)	(Code 2040)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE AMMUNITION (OC)

**3. Photograph/Description:** When fired from a shotgun, this 12 gauge cartridge produces a cone-shaped blast of OC powder of approximately 8 feet in diameter at a range of 25 feet.

**4. History/Background:**

**5. Potential Targets/Applications:** Riotous crowds, room clearing, animal control

**6. Primary Users:**

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved by the burning sensation and the inflammation of the eyes and eyelids, nasal membranes, and respiratory membranes (if inhaled). Temporary blindness may result due to the eyelids swelling shut and/or involuntary closing of the eyes.

**8. Physical Data**

a. **Size:** 12 gauge

b. **Weight:**

c. **Power Requirements:** 12 gauge shotgun

**9. Performance Characteristics**

a. **Effect on Target:** Individual is incapacitated due to swelling of the eyelids which causes a temporary blindness, which in turn can cause disorientation. If the OC is inhaled, the individual is also incapacitated due to the swelling of the membranes in the respiratory tract which causes difficulty in breathing and reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual.

c. **Duration of Effect:** Approximately 30 minutes

d. **Range:** 8 to 30 feet

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Pepper powder effectiveness is significantly reduced by a gas mask or wet rags (wet rags leave the eyes unprotected). The agent will still irritate exposed skin.

b. **Weather, Environment Limitations:** Pepper powder is susceptible to wind patterns and heavy rainfall, operator may be exposed to the agent if he is downwind from the target.



c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Approximately 40 deaths have been reported after application of pepper spray. Current pepper sprays products vary in concentration and in type of pepper used for the oleoresin capsicum extract. The variation in type of pepper used results in pepper spray products which possess different levels of effectiveness. Because of this, the level of effectiveness is not accurately represented by the various product labels which claim 5%, 10%, 15%, etc. OC formulations. After exposure to OC, an individual should not be hog-tied or placed on his/her stomach. The combination of the inflammatory effects of OC and the effect of physically limiting an individual's breathing capability by placing the individual on his/her stomach can lead to suffocation.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Phoenix Systems Inc.  
P.O. Box 3339  
Evergreen, Co 80439  
(303) 277-0305 phone  
(303) 278-8101 fax

**16. Cost:** 3 pack \$19.95 (Code 204)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 12 GAUGE FERRET\* LIQUID AGENT BARRICADE-PENETRATING CARTRIDGE (OC)

**3. Photograph/Description:** This round is designed to release OC into barricaded enclosures or vehicles. The round is fired from a 12-gauge shot gun and can penetrate most common materials at safe stand-off distances. It can penetrate a car windshield at 100 feet, 3/4 inch plywood at 100 feet, 1/4 inch plate glass at 300 feet, a hollow-core door at 300 feet. and a double-panel storm window with screen at 300 feet. The round releases 3 cubic centimeters of chemical agent in aerosol form, and this amount of chemical agent can disable subjects in a 1,000 cubic foot enclosure (10 foot by 10 foot by 10 foot room). There is no fire potential because the round disperses its contents by disintegrating as it penetrates the target. Because the round disintegrates while penetrating, there is little chance of secondary penetration.

**4. History/Background:**

**5. Potential Targets/Applications:** Barricade situations.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Incapacitation is achieved by the burning sensation and the inflammation of the eyes and eyelids, nasal membranes, and respiratory (if inhaled). Temporary blindness may result due to eyelids swelling shut and/or involuntary closing of the eyes.

**8. Physical Data**

a. **Size:**

b. **Weight:**

c. **Power Requirements:** None.

**9. Performance Characteristics**

a. **Effect on Target:** Individual is incapacitated due to swelling of the eyelids which causes temporary blindness, which in turn can cause disorientation. If the OC is inhaled, the individual is also incapacitated due to the swelling of the membranes in the respiratory tract which causes difficulty in breathing and reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual.

c. **Duration of Effect:** Approximately 30 minutes.

d. **Range:** The round can penetrate a car windshield at 100 feet, 3/4 inch plywood at 100 feet, 1/4 inch plate glass at 300 feet, a hollow-core door at 300 feet. and a double-panel storm window with screen at 300 feet. The OC can effect individuals from 3 to 65 feet away from the dispensing point of the round.

**10. Delivery Means:** Fired from a 12-gauge shot gun.

**11. Operational Strengths:** Quick acting agents

**12. Operational Limitations**

**a. Countermeasures:** Pepper powder effectiveness is significantly reduced by a gas mask or wet rags (wet rags leave the eyes unprotected). The agent will still irritate exposed skin.

**b. Weather, Environment Limitations:** This round is used to penetrate enclosures, so weather conditions should not affect the dispersion of the OC.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Approximately 40 deaths have been reported after application of pepper spray. Current pepper sprays products vary in concentration and in type of pepper used for the oleoresin capsicum extract. The variation in type of pepper used results in pepper spray products which possess different levels of effectiveness. Because of this, the level of effectiveness is not accurately represented by the various product labels which claim 5%, 10%, 15%, etc. OC formulations. After exposure to OC, an individual should not be hog-tied or placed on his/her stomach. The combination of the inflammatory effects of OC and the effect of physically limiting an individual's breathing capability by placing the individual on his/her stomach can lead to suffocation.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM FERRET<sup>®</sup> LIQUID AGENT BARRICADE-PENETRATING CARTRIDGE (OC)

**3. Photograph/Description:** This round is designed to release OC into barricaded enclosures or vehicles. The round is fired from a 37/38 mm gas gun and can penetrate most common materials at safe stand-off distances. It can penetrate a car windshield at 100 feet, 3/4 inch plywood at 75 feet, 1/4 inch plate glass at 200 feet, a hollow-core door at 175 feet. and a double-panel storm window with screen at 200 feet. The round releases 25 cubic centimeters of chemical agent in aerosol form, and this amount of chemical agent can disable subjects in a 4,500 cubic foot enclosure (10 foot by 20 foot by 22.5 foot room). There is no fire potential because the round disperses its contents by disintegrating as it penetrates the target. Because the round disintegrates while penetrating, there is little chance of secondary penetration.

**4. History/Background:**

**5. Potential Targets/Applications:** Barricade situations.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation is achieved by the burning sensation and the inflammation of the eyes and eyelids, nasal membranes, and respiratory (if inhaled). Temporary blindness may result due to eyelids swelling shut and/or involuntary closing of the eyes.

**8. Physical Data**

- a. Size: 37/38 mm round
- b. Weight:
- c. Power Requirements: None.

**9. Performance Characteristics**

a. **Effect on Target:** Individual is incapacitated due to swelling of the eyelids which causes temporary blindness, which in turn can cause disorientation. If the OC is inhaled, the individual is also incapacitated due to the swelling of the membranes in the respiratory tract which causes difficulty in breathing and reduces the level of physical exertion that the individual can sustain.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual.

c. **Duration of Effect:** Approximately 30 minutes.

d. **Range:** The round can penetrate a car windshield at 100 feet, 3/4 inch plywood at 75 feet, 1/4 inch plate glass at 200 feet, a hollow-core door at 175 feet. and a double-panel storm window with screen at 200 feet. The OC can effect individuals from 3 to 65 feet away the dispensing point of the round.

**10. Delivery Means:** Fired from a 37/38 mm gas gun.

**11. Operational Strengths:** Quick acting agents

**12. Operational Limitations**

**a. Countermeasures:** Pepper powder effectiveness is significantly reduced by a gas mask or wet rags (wet rags leave the eyes unprotected). The agent will still irritate exposed skin.

**b. Weather, Environment Limitations:** This round is used to penetrate enclosures, so weather conditions should not effect the dispersion of the OC.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Approximately 40 deaths have been reported after application of pepper spray. Current pepper sprays products vary in concentration and in type of pepper used for the oleoresin capsicum extract. The variation in type of pepper used results in pepper spray products which possess different levels of effectiveness. Because of this, the level of effectiveness is not accurately represented by the various product labels which claim 5%, 10 %, 15%, etc OC formulations. After exposure to OC, an individual should not be hog-tied or placed on his/her stomach. The combination of the inflammatory effects of OC and the effect of physically limiting an individual's breathing capability by placing the individual on his/her stomach can lead to suffocation.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 mm MUZZLE BLAST CARTRIDGE (CN, CN/dye, CS, OC)

**3. Photograph/Description:** The Muzzle Blast Cartridge instantaneously discharges 85 grams of powdered irritant agent. The cartridge is intended for short range use, and as such, it discharges only the agent (not the wadding, case closure, nor retaining rings). It is fired from a standard 37/38 mm riot gun. Available agents are CN, CN/dye, CS, or OC (pepper powder).

**4. History/Background:**

**5. Potential Targets/Applications:** Individual or crowd

**6. Primary Users:** Military and Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):

Incapacitation via CN and CS is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested. Incapacitation via OC is achieved by the burning sensation and the inflammation of the eyes and eyelids, nasal membranes, and respiratory membranes. Temporary blindness may result due to the eyelids swelling shut and/or involuntary closing of the eyes.

**8. Physical Data**

- a. Size:
- b. Weight: 85 grams of agent
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Tearing, skin and mucous membrane irritation
- b. Time to Effect: Instant to a few seconds
- c. Duration of Effect: Approximately 30 minutes
- d. Range: Short range

**10. Delivery Means:** Standard 37/38 mm riot gun

**11. Operational Strengths:** Provides instantaneous dispersion of agent. target

**12. Operational Limitations**

- a. Countermeasures: The agent effectiveness is significantly reduced by a gas mask or wet rags (wet rags leave the eyes unprotected). The agent will still irritate exposed skin.
- b. Weather, Environment Limitations: High winds and/or heavy rain may decrease the

effectiveness.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

At close ranges, the CN and CS dosage may be dangerously high. Operator is likely to be exposed to the agent during use.

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 14 LIQUID FILLED BARRICADE PROJECTILE (CN, CS, AND OC)

**3. Photograph/Description:** No. 14 is a spin stabilized projectile which is filled with liquid CN, CS, or OC. Also, a red dye is added to aid in shot placement. There is no fire potential because the round disperses its contents by disintegrating as it penetrates the target. Because the round disintegrates while penetrating, there is little chance of secondary penetration. The projectile is loaded in a 37/38 mm shell.

**4. History/Background:**

**5. Potential Targets/Applications:** Barricaded hostage situations

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The projectile can deliver CS, CN, or OC. Incapacitation using CS, CN, or OC is achieved through burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, and burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to large concentrations or if the agent is ingested.

**8. Physical Data**

a. **Size:** Length = 6.3 inch, caliber = 1.5 inch (37/38 mm)

b. **Weight:** 6.3 ounces (1.1 ounce of CN, or 0.6 ounces of CS, or 2.06 ounces of OC)

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Burning sensation of the eyes, coughing, tearing, difficulty in breathing, chest tightness, involuntary closing of the eyes, burning sensation on exposed skin. Nausea and vomiting may occur if individual is exposed to a large concentration or if the agent is ingested.

b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual. CS may take as long as 20 to 60 seconds for maximum effectiveness.

c. **Duration of Effect:** Approximately 30 minutes.

d. **Range:** 200 yards

**10. Delivery Means:** Projectile is fired from 37/38 mm gas guns.

**11. Operational Strengths:** Quick acting agents, no fire start potential.

**12. Operational Limitations**

a. **Countermeasures:** The agent effectiveness is significantly reduced by a gas mask or wet rags



(wet rags leave the eyes unprotected). The agent will still irritate exposed skin.

**b. Weather, Environment Limitations:** High winds and/or heavy rain may decrease the effectiveness and delivery of the CN, CS, and OC. Operator may be exposed to the agent if he is downwind of the target.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
At close ranges, the CN and CS dosage may be dangerously high.

**13. Requirements Documentation: None**

**14. System Developer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**15. Manufacturer/Contractor**

- a. Government:**
- b. Manufacturer:**

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 40 MM FERRET<sup>®</sup> LIQUID AGENT BARRICADE-PENETRATING CARTRIDGE (OC)

**3. Photograph/Description:** This round is designed to release OC into barricaded enclosures or vehicles. The round is fired from a 40 mm gas gun and can penetrate most common materials at safe stand-off distances. It can penetrate a car windshield at 160 feet and a hollow-core door at 325 feet. The round releases 25 cubic centimeters of chemical agent in aerosol form, and this amount of chemical agent can disable subjects in a 4,500 cubic foot enclosure (10 foot by 20 foot by 22.5 foot room). There is no fire potential because the round disperses its contents by disintegrating as it penetrates the target. Because the round disintegrates while penetrating, there is little chance of secondary penetration.

**4. History/Background:**

**5. Potential Targets/Applications:** Barricade situations.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Incapacitation is achieved by the burning sensation and the inflammation of the eyes and eyelids, nasal membranes, and respiratory (if inhaled). Temporary blindness may result due to eyelids swelling shut and/or involuntary closing of the eyes.

**8. Physical Data**

- a. Size: 40 mm round
- b. Weight:
- c. Power Requirements: None.

**9. Performance Characteristics**

- a. **Effect on Target:** Individual is incapacitated due to swelling of the eyelids which causes temporary blindness, which in turn can cause disorientation. If the OC is inhaled, the individual is also incapacitated due to the swelling of the membranes in the respiratory tract which causes difficulty in breathing and reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual.
- c. **Duration of Effect:** Approximately 30 minutes.
- d. **Range:** The round can penetrate a car windshield at 160 feet and a hollow-core door at 325 feet. The OC can effect individuals from 3 to 65 feet away from the dispensing point of the round.

**10. Delivery Means:** Fired from a 40 mm grenade launcher.

**11. Operational Strengths: Quick acting agents**

**12. Operational Limitations**

**a. Countermeasures:** Pepper powder (OC) effectiveness is significantly reduced by a gas mask or wet rags (wet rags leave the eyes unprotected). The agent will still irritate exposed skin.

**b. Weather, Environment Limitations:** This round is used to penetrate enclosures, so weather conditions should not effect the dispersion of the OC.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Approximately 40 deaths have been reported after application of pepper spray. Current pepper sprays products vary in concentration and in type of pepper used for the oleoresin capsicum extract. The variation in type of pepper used results in pepper spray products which possess different levels of effectiveness. Because of this, the level of effectiveness is not accurately represented by the various product labels which claim 5%, 10 %, 15%, etc. OC formulations. After exposure to OC, an individual should not be hog-tied or placed on his/her stomach. The combination of the inflammatory effects of OC and the effect of physically limiting an individual's breathing capability by placing the individual on his/her stomach can lead to suffocation.

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

**16. Cost:**

## OC Spray Introduction

Oleoresin Capsicum (OC) - A food grade pepper extract which induces a burning sensation of the skin and because it is an inflammatory agent, produces burning and swelling of the eyes, and if inhaled, a swelling of the mucous membranes lining the breathing passages which causes a temporary restriction of breathing.

Capsaicin - The active component in OC. The capsaicin content usually ranges from 0.1% to 1.0% of the total OC content depending on the type of pepper.

Scoville Heat Units (SHU) - An arbitrary measurement of the heat effect caused by the active ingredient in OC. Pure capsaicin is rated at 15 million SHU. OC sprays usually range from 200,000 to 2,000,000 SHU.

Contact with oleoresin capsicum (OC), a food grade pepper extract, induces an almost immediate burning sensation of the skin, a burning and swelling of the eyes, and if inhaled, a swelling of the mucous membranes lining the breathing passages which causes a temporary restriction of breathing.

This is due to the inflammatory effects of OC on the respiratory system. A reduced respiration capacity results in a reduced level of physical exertion. Because OC is an inflammatory agent, it can be effective against an individual whose pain threshold has been raised due to drugs or endorphins and who would, otherwise, not respond to a chemical irritant alone.

A variety of carrier systems are available, some of which are safer than others. The following carriers are considered flammable: isopropyl alcohol, ethanol. The following carriers are considered to be carcinogen chemicals: Dioxane, methylene chloride. Freon and Dymel are considered ozone depleting and toxic, respectively. Water based carrier systems which use nitrogen or carbon dioxide propellants offer the safest means for dispensing the OC. Two points should be made regarding the use of alcohol as a carrier. The first point is that the OC extract is more soluble in alcohol than in water. Therefore, alcohol based carriers can deliver a larger amount of capsaicin to the target when compared to water based carriers on a volume basis (i.e. for the same volume of alcohol and water, the alcohol can carry more capsaicin). The second point is that isopropyl alcohol has been used in aerosols for household and pharmaceutical products since the 1930's.

The percentage of OC present in a product may be misleading as to its effectiveness. For OC to be most effective, it must break up, or atomize, into a mist. Because OC is an oil, it breaks up less easily in its concentrated state. Therefore, sprays with contents of OC larger than 5% may be slower in disabling an assailant. However, due to the larger concentration of OC, a person may be disabled for a longer period of time. Higher OC concentrations may be desirable where immediate containment of an assailant/assailants is not feasible. However, higher concentrations of OC may not be desirable where immediate containment and voluntary cooperation of an assailant are necessary. Depending upon the product, as well as the individual being sprayed, a 5% OC spray may immobilize a person for up to 45 minutes while a 10% OC spray may immobilize a person for up to 70 minutes.

Within the substance OC (Oleoresin Capsicum), there is a colorless compound called Capsaicin which creates the heat experienced upon contact. The concentration of the active component Capsaicin in Oleoresin Capsicum usually ranges from 0.1% to 1.0%. Originally, the heat which Capsaicin generates was measured subjectively by mixing it with a mixture of sugar, water, and alcohol. The mixture was then tasted and rated by a panel of people. This heat effect can now be measured by a computerized method called high-performance liquid chromatography. The effective heat generated is measured in Scoville Heat Units (SHU). Pure Capsaicin is rated at 15 million SHU. Current OC sprays typically range from 200,000 to 2,000,000 SHU. Because OC sprays rely on the effects of capsaicin to incapacitate an

individual, the SHU rating may be a strong indication of the effectiveness of an OC product.

The three most common forms of spray pattern available for OC sprays are: ballistic stream, fogger, and foam. The ballistic stream pattern projects mini and micro droplets via a broken stream which expands to a diameter of 12 to 18 inches at a range of about 15 feet. This may be desirable for use on a single assailant where cross contamination is a concern. The fogger projects a fine mist which may be easily displaced by wind. Such a spray pattern may be ideal for outdoor control of riotous crowds. A fogger may not be desirable for indoor situations where it is critical that any persons remain in an area directly after releasing OC into the air. The foam pattern may be ideal for use on a single assailant where cross contamination or indoor contamination is a concern. Foam may be sprayed on a target without contamination of people in the surrounding area.

Decontamination greatly reduces the recovery time of a contaminated person. The following decontamination steps are suggested by the Defense Technology Corporation of America.

In general, ventilate the building to remove airborne OC. Open all doors and windows and use fans to increase ventilation. Surfaces can be washed with water or a damp cloth. A wet/dry vacuum can be used to collect the OC residue. OC residue can be washed down any drain since the residue is non-toxic.

For the eyes: Wash out the eyes with large amounts of water. Do not allow the subject to rub his/her eyes or face. If the subject is wearing contact lenses, allow them to remove the lense or call EMS to remove them. Expose the subject to fresh air.

For the nose: Breath normally, and blow the nose to remove discharge and OC particulates.

For the skin: Do not apply creams, salves, ouls, lotions, or burn creams because these will keep the OC in contact with the skin. Flush the skin with large amounts of fresh, cool water, and expose the subject to fresh air.

For the chest: Keep the subject calm and restrict activity.

Products are available which may expedite the decontamination process of individuals, as well as enclosed areas where quick entry or use of an area is desirable. One supplier of such products is:

Chief Supply  
P.O. Box 22710  
Eugene, OR 97402  
(800) 824-4338 phone number  
(800) FAX-2003 fax number

Chief Supply has the following products available:

BioShield, 2 ounces., pump, (product code B1000-2)	Price \$9.95
BioShield, 4 ounces., pump, (product code B1000-4)	Price \$15.95
BioShield, 2 ounces., aerosol, (product code R1500-2)	Price \$9.95
BioShield, 4 ounces., aerosol, (product code R1500-4)	Price \$15.95
BioShield, 10 ounces., aerosol, (product code R1500-10)	Price \$29.95
Sudecon Towlette, 12" x 9", sealed in 3" x 4" pouch	Price \$1.29 or box of 100 for \$99.00

Defense Technology Corporation of America also supplies a decontamination product called First Relief. First Relief is contains eight ounces of deionized water and utilizes a unique misting delivery system which delivers a mist for approximately three minutes.

**First Relief (product code 5019) call for price**

**Defense Technology Corporation**  
**(800) 733-3832 phone number**  
**(307) 473-2605 fax number**

**Latest Revision Date: September 12, 1995**

**1. Status: Currently Available**

**2. Weapon Name: PEPPER SPRAYS (OC SPRAYS)**

**3. Photograph/Description:**

Contact with oleoresin capsicum (OC), a food grade pepper extract, induces an almost immediate burning sensation of the skin, a burning and swelling of the eyes, and if inhaled, a swelling of the mucous membranes lining the breathing passages which causes a temporary restriction of breathing. Because OC is an inflammatory agent, it can be effective against an individual whose pain threshold has been raised due to drugs or endorphins and who would, otherwise, not respond to a chemical irritant alone. This is due to the inflammatory effects of OC on the respiratory system. A reduced respiration capacity results in a reduced level of physical exertion. See the OC Spray Introduction for more details.

**Aerko International**

**(All products are rated at 2,000,000 SHU)**

**(All products use an Isopropyl Alcohol carrier except Punch™ III which uses a water-based carrier)**

- 1. CLEAR-OUT® Grenade, Model A825, 1% CS and 1% OC, 6 ounces, discharges complete contents approximately 28 seconds after activation, gas expands to 23,000 cubic feet about 1 minute after activation**
- 2. CLEAR-OUT® Keyholer, Model KHA848, 1% CS and 1% OC, 6 ounces, equipped a 6 foot surgical tubing capable of delivering contents through small entry ports, contains an ultra violet marking dye**
- 3. CLEAR-OUT® Auto Ejector, Model AEA841, 1% CS and 1% OC, 73 grams, equipped with a short length of flexible tubing attached to a 4 ½ inch stainless steel needle, contains an ultra violet marking dye**
- 4. Deep FREEZE®, 1% CS and 1% OC, 15.7 ounces, disperses a moderate volume of irritant and ultra violet marking dye into a fan shaped projection over a range normally required in tactical operation**
- 5. FREEZE® Plus Concentrate, 1% CS and 0.25% OC, 1 quart**
- 6. FREEZE® Plus Concentrate, 1% CS and 0.25% OC, 1 gallon**
- 7. FREEZE® Plus P Concentrate, 1% CS and 1% OC, 1 quart**
- 8. FREEZE® Plus P Concentrate, 1% CS and 1% OC, 1 gallon**
- 9. FREEZE® Plus, 1% CS and 0.25% OC, ½ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available**
- 10. FREEZE® Plus P, 1% CS and 1% OC, ½ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available**
- 11. FREEZE® Plus, 1% CS and 0.25% OC, ¾ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available .**
- 12. FREEZE® Plus P, 1% CS and 1% OC, ¾ ounce, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available**
- 13. FREEZE® Plus, 1% CS and 0.25% OC, 2 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available**
- 14. FREEZE® Plus P, 1% CS and 1% OC, 2 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves also are available**
- 15. FREEZE® Plus, 1% CS and 0.25% OC, 4 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available**
- 16. FREEZE® Plus P, 1% CS and 1% OC, 4 ounces, utilizes a streamer nozzle with a range of 6-10 feet, contains an ultra violet marking dye, optional burst and trigger valves are also available**
- 17. Deep PUNCH™ II, 5% OC, 9 ounces, disperses a moderate volume of irritant and ultra violet marking dye into a fan shaped projection over a range normally required in tactical operation**

18. PUNCH™ II Concentrate, 5% OC, 1 quart
19. PUNCH™ II Concentrate, 5% OC, 1 gallon
20. M-1, PUNCH™, 1% OC, ½ ounce, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
21. M-1, PUNCH™ II, 5% OC, ½ ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
22. M-1, PUNCH™ III, 5% OC, ½ ounce, projects a 10 inch splatter pattern of irritant (at a range of 10 feet) on a Micro bubble foam which breaks down for immediate effect
23. M-2, PUNCH™, 1% OC, ¾ ounce, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
24. M-2, PUNCH™ II, 5% OC, ¾ ounce, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
25. M-2, PUNCH™ III, 5% OC, ¾ ounce, projects a 10 inch splatter pattern of irritant (at a range of 10 feet) on a Micro bubble foam which breaks down for immediate effect
26. M-3, PUNCH™, 1% OC, 2 ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
27. M-3, PUNCH™ II, 5% OC, 2 ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
28. M-2, PUNCH™ III, 5% OC, 2 ounces, projects a 10 inch splatter pattern of irritant (at a range of 10 feet) on a Micro bubble foam which breaks down for immediate effect
29. M-4, PUNCH™, 1% OC, 4 ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
30. M-4, PUNCH™ II, 5% OC, 4 ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
31. M-2, PUNCH™ III, 5% OC, 4 ounces, projects a 10 inch splatter pattern of irritant (at a range of 10 feet) on a Micro bubble foam which breaks down for immediate effect
32. M-5-G, PUNCH™ II Grenade, 5% OC, 5 ounces, discharges complete contents approximately 28 seconds after activation, gas expands to 23,000 cubic feet about 1 minute after activation
33. M-5-B, PUNCH™ II Burst Unit
34. M-5-KH, PUNCH™ II Keyholer

#### Aero Tech Labs

Avenger®, 10% OC, 3 ounces, projects a cone spray of irritant out to a range of 15 feet, contains approximately 8 bursts

#### Advanced Defense Technologies

(All Products are rated at 1,500,000 SHU)

#### B-Safe Industries, Inc.

(All products are rated at 1,500,000 SHU)

(All products use Methylene Chloride and Trichlorethylene as a carrier)

1. Self Defense Key Chain Unit, 5% OC, ½ ounce, delivers OC out to a range of 3 to 8 feet
2. Personal Size Spray, 5% OC, 2 ounces, for use on one or more individuals, range of 3 to 10 feet
3. Standard Duty Size, 5% OC, 4 ounces, for use on one or more individuals, range of 3 to 10 feet
4. Tossable Grenade, 5% OC, 6 ounces, once triggered, dispenses entire contents via aerosol dispersal, non-exploding
5. Tossable Mini Grenade, 5% OC, 2 ounces, once triggered, dispenses entire contents via aerosol dispersal, non-exploding
6. Crowd Control, 5% OC, 6 ounces, range of 6 to 16 feet



7. Injector Kit (for item 6) - allows OC to be injected through holes, gaps, cracks in rooms and vehicles, kit includes 4 feet of plastic hose, plastic injector needle and snap-on fitting
8. Magnum, 5% OC, 16 ounces, large capacity, high volume, range of 25 feet
9. Magnum 10% OC, 16 ounces, large capacity, high volume, range of 25 feet
10. Mega, 5% OC, 5.5 lbs., range of 30 to 33 feet, trigger operated, sprays conical spray bursts, powerful enough to deliver through HVAC system, visible pressure gauge to monitor tank status.
11. Mega, 10% OC, 5.5 lbs., range of 30 to 33 feet, trigger operated, sprays conical spray bursts, powerful enough to deliver through HVAC system, visible pressure gauge to monitor tank status.
12. Mega Refill Kit, 5% OC, 5.5 lbs., pressure seals, refill instructions
13. Mega Refill Kit, 10% OC, 5.5 lbs., pressure seals, refill instructions
14. Colossus, 10% OC - range of 60 to 65 feet, quick bursts produce 5 to 5 1/2 foot wide clouds of OC, visible pressure gauge to monitor tank status.
15. Colossus Refill Kit, 10% OC

#### **Casco International, Inc.**

##### **Chief Supply**

1. Pensize, 10% OC,
2. Stream, 10% OC, 2 ounces,
3. Stream, 10% OC, 4 ounces,
4. Fogger, 10% OC, 2 ounces,
5. Fogger, 10% OC, 4 ounces,
6. Fogger, 10% OC, 16 ounces,
7. Foam, 10% OC, 2 ounces,
8. Foam, 10% OC, 4 ounces,

##### **Counter Assault**

(All products rated at 1,000,000 SHU)

1. Self Defense Canister, 10% OC, 1.75 ounces, projects a cone shaped spray of irritant out to a range of 8-10 feet, contents are reddish-brown in color
2. Duty Belt Canister, 10% OC, 4 ounces, projects a cone shaped spray of irritant out to a range of 10-12 feet, contents are reddish-brown in color
3. Bear Repellent Canister, 10% OC, 15 ounces, projects a cone shaped spray of irritant out to a range of 18-25 feet, contents are reddish-brown in color

#### **CSP International, Inc.**

##### **Defense Technology Corporation of America**

(All products use a solution of water(58%), ethanol alcohol(28%), and glycol(13%) as a carrier

1. MK-III, FIRST DEFENSE®, 10% OC, 1.47 ounces, projects a ballistic stream of irritant out to a range of 12-15 feet, contains approximately 14-16 half-second bursts
2. MK-IV, FIRST DEFENSE®, 10% OC, 3.0 ounces, projects a ballistic stream irritant out to a range of 12-15 feet, contains approximately 35-40 half-second bursts
4. MK-VI, FIRST DEFENSE®, 10% OC, 0.68 ounce, projects a ballistic stream irritant out to a range of 10-12 feet, contains approximately 8-10 half-second bursts
5. MK-IX, FIRST DEFENSE®, 10% OC, 18.5 ounces, utilizes a high-output Fogger to project irritant out to a range of 10-15 feet, contains approximately 18-20 half-second bursts
6. MK-21, FIRST DEFENSE®, 10% OC, 21.0 ounces, projects a fan pattern out to a range of 25-30 feet,

contains approximately 12 half-second bursts, unit is factory refillable

7. MK-46, FIRST DEFENSE®, 10% OC, 46.0 ounces, projects a fan pattern out to a range of 25-30 feet, an optional hose and stainless steel wand with piercing tip allows for protrusion through walls and hollow core doors as well as underneath doors, through windows, or around corners, contains approximately 24 half-second bursts, unit is factory refillable

Note: Defense Technology Corp. of America no longer manufactures CS or CN products nor does it manufacture combination products involving CS/CN/OC.

## **Guardian Protective Devices**

### **Guardian Security Products**

(All PepperGas™ products are rated at 1,000,000 SHU)

(All Alaskan Magnum products are rated at 2,000,000 SHU)

1. PepperGas™ Home Unit, 11% OC, 3.0 ounces, projects a mist of irritant out to a range of 12 feet, contains an ultra violet marking dye
2. Alaskan Magnum, 10% OC, 4 ounces, projects a fog of irritant out to a range of 12-15 feet
3. Alaskan Magnum, 10% OC, 9 ounces, projects a fog of irritant out to a range of 12-15 feet
4. Alaskan Magnum, 10% OC, 15 ounces, projects a fog of irritant out to a range of 12-15 feet

### **Knock-Out Security Products**

(All products are rated at 1,500,000 SHU)

1. Knock-Out 3 ounces Pepper Spray Unit - Contains 5% oleoresin capsicum, is non-flammable, and contains an ultraviolet identification dye.
2. Knock-Out 4 ounces Pepper Spray with Fire Master Handle - Contain 5% oleoresin capsicum, is non-flammable, and contains an ultraviolet identification dye.
3. Knock-Out 3 ounces Pen Size Pepper Spray Unit - Contain 5% oleoresin capsicum, is non-flammable, and contains an ultraviolet identification dye.
4. Knock-Out ½ ounce Pepper Spray Unit - Contain 5% oleoresin capsicum, is non-flammable, and contains an ultraviolet identification dye.

## **Mace Security International**

(All products are rated at 1,500,000 SHU)

(All 5% OC, CN/OC, and CS/OC products use D-Limonene as a carrier. All 10% OC products use a water-based carrier)

1. MK-III, PEPPERMADE®, 5.5% OC, 1.62 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, (code 3005)
2. MK-IVB, PEPPERMADE®, 5.5% OC, 3.00 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts, (code 4005)
3. MK-V, PEPPERMADE®, 5.5% OC, 1.76 ounces, utilizes a Ballistic Stream nozzle with a range of 6-12 feet, provides approximately 37 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, Reload available, (code 5005)
4. MK-VI, PEPPERMADE®, 5.5% OC, 0.60 ounce, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, (code 6005)
5. MK-VII, PEPPERMADE®, 5.5% OC, 0.35 ounce, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 5 one-second bursts, contained inside a protective housing with a pistolgrip

dispenser, (code 7005)

6. MK-VIII, PEPPERMA<sup>®</sup>, 5.5% OC, 1.06 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 14 one-second bursts, housed in a baton dispenser, reload available, (code 8005)

7. MK-IX, PEPPERMA<sup>®</sup>, 5.5% OC, 18.34 ounces, utilizes a Magnum Fogger nozzle with a range of 15-25 feet, provides approximately 25 one-second bursts, equipped with a highly directional pistol handle dispenser, (code 9005)

8. MK-XI, PEPPERMA<sup>®</sup>, 5.5% OC, 2.47 ounces, utilizes a full cone Fogger nozzle with a range of 6-12 feet, provides approximately 11 one-second bursts, (code B005)

9. MK-XII, PEPPERMA<sup>®</sup>, 5.5% OC, 4.23 ounces, utilizes a full cone Fogger nozzle with a range of 6-12 feet, provides approximately 37 one-second bursts, (code C005)

10. MK-XIII, PEPPERMA<sup>®</sup>, 5.5% OC, 1.62 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, (code D005)

11. MK-III, PEPPER 10<sup>TM</sup>, 10% OC, 1.62 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, (code 3025)

12. MK-IVB, PEPPER 10<sup>TM</sup>, 10% OC, 3.17 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts, (code 4025)

13. MK-VI, PEPPER 10<sup>TM</sup>, 10% OC, 0.60 ounce, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, (code 6025)

14. MK-VII, PEPPER 10<sup>TM</sup>, 10% OC, 0.35 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 5 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, (code 7025)

15. MK-VIII, PEPPER 10<sup>TM</sup>, 10% OC, 1.06 ounce, utilizes a nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, housed in a baton dispenser, reload available, (code 8025)

16. MK-III, PEPPER Foam<sup>TM</sup>, 10% OC, 2.36 ounces, projects a jet foam out to a range of 6-8 feet, provides approximately 4 one-second bursts, (code 3040)

17. MK-IVB, PEPPER Foam<sup>TM</sup>, 10% OC, 3.99 ounces, projects a jet foam out to a range of 6-8 feet, provides approximately 10 one-second bursts, (code 40)

18. MK-IX, PEPPER Foam<sup>TM</sup>, 10% OC, 14.29 ounces, projects a jet foam out to a range of 6-8 feet, provides approximately 7 one-second bursts, equipped with a highly directional pistol handle dispenser, (code 9040)

19. MK-XIII, PEPPER Foam<sup>TM</sup>, 10% OC, 2.36 ounces, projects a jet foam out to a range of 6-8 feet, provides approximately 4 one-second bursts, (code D040)

20. MK-III, Pepper-Fortified MACE<sup>®</sup>, CN/OC, 1.76 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, contains an ultraviolet marking dye, (code 3000)

21. MK-IVB, Pepper-Fortified MACE<sup>®</sup>, CN/OC, 3.35 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts, contains an ultraviolet marking dye, (code 4000)

22. MK-VI, Pepper-Fortified MACE<sup>®</sup>, CN/OC, 0.63 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, contains an ultraviolet marking dye, (code 6000)

23. MK-VII, Pepper-Fortified MACE<sup>®</sup>, CN/OC, 0.39 ounce, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 5 one-second bursts, contained inside a protective housing with a pistolgrip dispenser, contains an ultraviolet marking dye, (code 7000)

24. MK-VIII, Pepper-Fortified MACE<sup>®</sup>, CN/OC, 1.09 ounces, utilizes a Ballistic Stream nozzle with a range of 6-12 feet, provides approximately 14 one-second bursts, housed in a baton dispenser, reload

available, contains an ultraviolet marking dye, (code 8000)

25. MK-IX, Pepper-Fortified MACE<sup>®</sup>, CN/OC, 18.34 ounces, utilizes a Magnum Fogger nozzle with a range of 15-25 feet, provides approximately 25 one-second bursts, equipped with a highly directional pistol handle dispenser, contains an ultraviolet marking dye, (code 9000)

26. MK-X, Pepper-Fortified MACE<sup>®</sup>, CN/OC, 0.60 ounce, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 10 one-second bursts, equipped with a highly directional pistol handle dispenser contains an ultraviolet marking dye, (code A000)

27. MK-III, Pepper-Fortified MACE<sup>®</sup>, CS/OC, 1.76 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts, contains an ultraviolet marking dye, (code 3030)

28. MK-IVB, Pepper-Fortified MACE<sup>®</sup>, CS/OC, 3.35 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts, contains an ultraviolet marking dye, (code 4030)

29. MK-VI, Pepper-Fortified MACE<sup>®</sup>, CS/OC, 0.63 ounce, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 11 one-second bursts, contained inside a protective housing with a pistol grip dispenser, contains an ultraviolet marking dye, (code 6030)

30. MK-VIII, Pepper-Fortified MACE<sup>®</sup>, CS/OC, 1.09 ounces, utilizes a Ballistic Stream nozzle with a range of 6-12 feet, provides approximately 14 one-second bursts, housed in a baton dispenser, reload available, contains an ultraviolet marking dye, (code 8030)

31. MK-IX, Pepper-Fortified MACE<sup>®</sup>, CS/OC, 18.34 ounces, utilizes a Magnum Fogger nozzle with a range of 15-25 feet, provides approximately 25 one-second bursts, equipped with a highly directional pistol handle dispenser, contains an ultraviolet marking dye, (code 9030)

#### **Omega Securities, Inc.**

(All Omega products use synthetically made Capsaicin, all Omega products use a 50% isopropanol and 50% water mixture as a carrier)

1. Personal Defense Unit, 1% Capsaicin, 1.0 ounce, projects a stream out to a range of 15-18 feet
2. Riot Control Unit, 1% Capsaicin, 1 pint
3. Barricade Unit, 1% Capsaicin, 12 ounces, a 20" baton which can be thrown through a window and project its contents as mist which fills an entire room

#### **1 Mark Inc.**

1. RiotMASTER I<sup>®</sup> - portable, high capacity, oleoresin capsicum (OC) spray units, contain adjustable nozzle to allow for stream or fog coverage, soft pack-back pack unit.
2. RiotMASTER II<sup>®</sup> - - portable, high capacity, oleoresin capsicum (OC) spray units, contain adjustable nozzle to allow for stream or fog coverage, hard pack-back pack unit, larger capacity than

#### **Performance Dimensions, Inc.**

(PRO-AER products are rated at 1,000,000 SHU)

(Devastator<sup>®</sup> products are rated at 1,500,000 SHU)

(PUNCH<sup>™</sup> products are rated at 2,000,000 SHU)

1. PRO-AER, 5% OC, 0.75 ounce, projects a fog spray to a range of 8-10 feet, contains approximately 10-12 half-second bursts.
2. PRO-AER, 5% OC, 0.75 ounce, projects a stream out to a range of 15-20 feet, contains approximately 25-30 half-second bursts
3. PRO-AER, 5% OC, 2 ounces, projects a cone shaped fog out to a range of 8-10 feet, contains approximately 20-25 half-second bursts
4. PRO-AER, cone shaped fog, 5% OC, 3 ounces, projects a cone shaped fog out to a range of 9-11 feet,

contains approximately 30-35 half-second bursts

5. PRO-AER, cone shaped fog, 5% OC, 4 ounces, projects a cone shaped fog out to a range of 9-12 feet, contains approximately 35-40 half-second bursts

6. PRO-AER, fog spray blast, 5% OC, 3 ounces, projects a fog spray blast out to a range of 6-8 feet, contains approximately 8 half-second bursts

7. PRO-AER, fog spray blast, 5% OC, 4 ounces, projects a cone fog spray blast out to a range of 10-12 feet, contains approximately 18 half-second bursts

8. PRO-AER, 5% OC, 6 ounces, emits entire contents into a fog cloud upon depression of self-locking trigger

9. PRO-AER, 5% OC, 6 ounces, equipped with flexible tubing and needle capable of penetrating small cracks, contains approximately 20 half-second bursts

10. Guardian Bullet Head, 5% OC, 2 ounces, emits a controlled fog pattern of irritant

11. Guardian Bullet Head, 5% OC, 3 ounces, emits a controlled fog pattern of irritant

12. Guardian Bullet Head, 5% OC, 4 ounces, emits a controlled fog pattern of irritant

13. Guardian Refillable Unit, 5% OC, ½ ounce, emits a controlled fog pattern of irritant

14. Guardian Refill for ½ ounce Unit, emits a controlled fog pattern of irritant

15. Guardian Refillable Key Ring Unit, 5% OC, emits a controlled fog pattern of irritant

16. Guardian Refill for Key Ring Unit, 5% OC, emits a controlled fog pattern of irritant

17. Pen Unit, 5% OC, ½ ounce, emits a controlled fog pattern of irritant, does not function as a pen

18. Guardian Grenade, 5% OC, 6 ounces

19. Guardian Extraction Device, 5% OC, 6 ounces, equipped with a flexible hose for entry through small cracks or holes

20. Guardian Entry Unit, 5% OC, 9 ounces, emits a controlled fog pattern of irritant

21. Guardian Entry Unit, 5% OC, 1 lb, emits a controlled fog pattern of irritant

22. Guardian Entry Unit, 5% OC, 1.5 lb, emits a controlled fog pattern of irritant

23. Devastator<sup>®</sup> Spray Unit, 5% OC, 2 ounces, emits a splatter stream pattern of irritant

24. Devastator<sup>®</sup> Spray Unit, 5% OC, 4 ounces, emits a splatter stream pattern of irritant

25. Devastator<sup>®</sup> Tossable Grenade, 5% OC, 6 ounces

26. Devastator<sup>®</sup> Crowd Burst, 5% OC, 6 ounces, emits a splatter stream pattern of irritant

27. Devastator<sup>®</sup> Magnum Unit, 5% OC, 16 ounces, emits a splatter stream pattern of irritant

28. Devastator<sup>®</sup> Magnum Unit, 10% OC, 16 ounces, emits a splatter stream pattern of irritant

29. Devastator Injector Tube Only, equipped with a flexible hose for entry through small cracks or holes, unit is reusable

30. MK-III, PEPPER MACE<sup>®</sup>, 5.5% OC, 1.62 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts

31. MK-IVB, PEPPER MACE<sup>®</sup>, 5.5% OC, 3.00 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts

32. MK-IX, PEPPER MACE<sup>®</sup>, 5.5% OC, 18.34 ounces, utilizes a Magnum Fogger nozzle with a range of 15-25 feet, provides approximately 25 one-second bursts, equipped with a highly directional pistol handle dispenser

33. MK-XI, PEPPER MACE<sup>®</sup>, 5.5% OC, 2.47 ounces, utilizes a full cone Fogger nozzle with a range of 6-12 feet, provides approximately 11 one-second bursts

34. MK-XII, PEPPER MACE<sup>®</sup>, 5.5% OC, 4.23 ounces, utilizes a full cone Fogger nozzle with a range of 6-12 feet, provides approximately 37 one-second bursts

35. MK-III, PEPPER 10<sup>TM</sup>, 10% OC, 1.62 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 20 one-second bursts

36. MK-IVB, PEPPER 10<sup>TM</sup>, 10% OC, 3.17 ounces, utilizes a Ballistic Stream nozzle with a range of 8-12 feet, provides approximately 40 one-second bursts

37. MK-III, Pepper Foam™, 10% OC, Foam Solution, 2.36 ounces, projects a jet foam out to a range of 6-8 feet, provides approximately 10 one-second bursts
38. MK-IVB Pepper Foam™, 10% OC, Foam Solution, 3.99 ounces, projects a jet foam out to a range of 6-8 feet, provides approximately 10 one-second bursts
39. MK-IX, Pepper Foam™, 10% OC Foam Solution, 14.29 ounces, projects a jet foam out to a range of 6-8 feet, provides approximately 7 one-second bursts, equipped with a highly directional pistol handle dispenser
40. M-1, PUNCH™ II, 5%OC, ½ ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
41. M-2, PUNCH™ II, 5% OC, ¾ ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
42. M-3, PUNCH™ II, 5% OC, 2 ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
43. M-4, PUNCH™ II, 5% OC, 4 ounces, available in: stream valve (range of 10 ft), cone valve (range of 4-6 ft), burst unit valve, or trigger top valve; contains an ultra violet marking dye
44. M-5-G, PUNCH™ II Grenade, 5% OC, 5 ounces, discharges complete contents approximately 28 seconds after activation, gas expands to 23,000 cubic feet about 1 minute after activation
45. M-5-B, PUNCH™ II Burst Unit
46. M-5-KH, PUNCH™ II Keyholer, equipped with a flexible tube capable of entering small holes, tube is not reusable
47. Deep PUNCH™ II, 5% OC, 15.7 ounces, disperses a moderate volume of irritant and ultra violet marking dye into a fan shaped projection over a range normally required in tactical operation
48. Auto Ejector Tube Only, a flexible tubing connected to a metal injector used to project irritant between window and door frame of automobile, tube is reusable
49. MK-III, FIRST DEFENSE®, 10% OC, 1.47 ounces, projects irritant out to a range of 12-15 feet, contains approximately 14-16 half-second bursts
50. MK-IV, FIRST DEFENSE®, 10% OC, 3.0 ounces, projects irritant out to a range of 12-15 feet, contains approximately 35-40 half-second bursts
51. MK-V, FIRST DEFENSE®, 10% OC, 1.47 ounces, projects irritant out to a range of 12-15 feet, contains approximately 14-16 half-second bursts, reload canisters are available (code 5059)
52. MK-VI, FIRST DEFENSE®, 10% OC, 0.68 ounce, projects irritant out to a range of 10-12 feet, contains approximately 8-10 half-second bursts
53. MK-IX, FIRST DEFENSE®, 10% OC, 18.5 ounces, utilizes a high-output Fogger to project irritant out to a range of 10-15 feet, contains approximately 18-20 half-second bursts
54. Flashlight and Pepper Spray, 5% OC, ½ ounce, equipped with a high intensity flashlight powered by 3 AAA batteries (included), projects stream up to 10 feet, contains an ultra violet marking dye
55. Refill for Flashlight and Pepper Spray Unit, 5% OC, ½ ounce, OC canister only

#### **Phoenix Systems Inc.**

**(All products are rated at 1,500,000 SHU)**

- Punch II 5%, ¾ ounce - delivers a cone-shaped mist out to a range of 12 feet, 1 second burst
- Punch II 5%, 2 ounces - delivers a cone-shaped mist out to a range of 12 feet, 1 second burst
- Punch II 5%, 4 ounces - delivers a cone-shaped mist out to a range of 12 feet, 1 second burst
- Punch II Gas Grenade 5% - delivers 20,000 cubic feet of gas in 28 seconds, may be used indoors or outdoors, non-burning/non-explosive dispersal, utilizes a locking discharge valve.
- Super Blaster Dispenser 10%, 3 ounces - utilizes a Fogger nozzle with a range up to 20 feet, contains a bright red dye.
- Super Blaster Dispenser 10%, 9 ounces - utilizes a Fogger nozzle with a range up to 20 feet, contains a

bright red dye.

Super Blaster Dispenser 10%, 16 ounces - utilizes a Fogger nozzle with a range up to 20 feet, contains a bright red dye.

Freeze (CS Gas), 3/4 ounce - dispenses CS tear gas

Freeze (CS Gas), 2 ounces - dispenses CS tear gas

Freeze (CS Gas), 4 ounces - dispenses CS tear gas

CS Tear Gas Grenade - delivers 23,000 cubic feet of gas in 28 seconds, utilizes a locking discharge valve. Contains an ultra-violet marking dye.

#### **Pro-Aer**

**(PRO-AER products are rated at 1,000,000 SHU)**

**(PRO-AER use Exxate-1000 as a carrier)**

1. PRO-AER, fog spray, 5% OC, 0.75 ounce, projects a fog of irritant out to a range of 8-10 feet, contains approximately 10-12 half-second shots
2. PRO-AER, streamer, 5% OC, 0.75 ounce, projects a stream of irritant out to a range of 15-20 feet, contains approximately 25-30 half-second shots
3. PRO-AER, cone shaped fog, 5% OC, 2 ounces, projects a fog of irritant out to a range of 8-10 feet, contains approximately 20-25 half-second shots
4. PRO-AER, cone shaped fog, 5% OC, 3 ounces, projects a fog of irritant out to a range of 9-11 feet, contains approximately 30-35 half-second shots
5. PRO-AER, cone shaped fog, 5% OC, 4 ounces, projects a fog of irritant out to a range of 9-12 feet, contains approximately 35-40 half-second shots
6. PRO-AER, fog spray blast, 5% OC, 3 ounces, utilizes a fire master head to project a fog spray of irritant out to a range of 6-8 feet, contains approximately 8 half-second shots
7. PRO-AER, fog spray blast, 5% OC, 4 ounces, utilizes a fire master head to project a fog spray of irritant out to a range of 10-12 feet, contains approximately 18 half-second shots
8. PRO-AER, crowd fogger, 5% OC, 18.6 ounces, projects a fog spray of irritant out to a range of 20-25 feet, contains approximately 50 half-second shots
9. PRO-AER, fog spray w/ hose, 5% OC, 16 ounces, projects a fog spray of irritant through a flexible hose and out a metal bar, metal bar may be used to pry open a window or drive through a sheet-rock wall to deliver contents of container to the other side, contains approximately 40 one-second shots, equipped with pressure gauge, refillable
10. PRO-AER, fog spray refill, 5% OC, 16 ounces
11. PRO-AER, Cone Spray, 5% OC, 5.5 lbs., projects a cone shaped spray of irritant out to a range of 30-35 feet, contains approximately 20 one-second shots, equipped with adjustable shoulder strap and pressure gauge, refillable
12. PRO-AER, Cone Spray refill, 5% OC, 5.5 lbs.,

#### **S&J Products and Services**

Security Plus® Pepper Spray 3/4 ounce Pen Unit

Fountain Pen Pepper Sprayer

Security Plus® Pepper Spray 2 ounce & 4 ounce Units

Security Plus® 4 ounce Fogger

#### **The Safety Source**

**(SmartGuard™ products are rated at 1,500,000 SHU)**

**(All products use a water-based carrier)**

1. SmartGuard™ Keychain Spray, 10% OC, 1/2 ounce, projects a stream of irritant 8-12 feet, contains

- approximately 20-24 half-second bursts, contains ultraviolet and red dye
- 2. SmartGuard™ Quick Release, 10% OC, ½ ounce, projects a stream of irritant 8-12 feet, contains approximately 20-24 half-second bursts, contains ultraviolet and red dye
- 3. SmartGuard™ Flair Pen, 10% OC, ½ ounce, projects a stream of irritant 8-12 feet, contains approximately 20-24 half-second bursts, contains ultraviolet and red dye
- 4. SmartGuard™ Flair Pen, 10% OC, ¾ ounce, projects a stream of irritant 8-12 feet, contains approximately 30-32 half-second bursts, contains ultraviolet and red dye
- 5. SmartGuard™ Fogger, 10% OC, 3 ounces, projects a fog of irritant 8-12 feet, contains approximately 8-9 half-second bursts, contains ultraviolet and red dye
- 6. SmartGuard™ Firemaster Top, 10% OC., 9 ounces, projects a heavy fog of irritant 14-15 feet, contains approximately 20-24 half-second bursts, contains ultraviolet and red dye

#### **Security Equipment Corporation**

(Sabre products are rated at 2,000,000 SHU)

- 1. Sabre, 5% OC and 2% CS, ½ ounce, projects a ballistic stream of irritant out to a range of 8 feet, contains approximately 15-18 seconds of discharge, contains an ultraviolet dye
- 2. Sabre, 5% OC and 2% CS, ¾ ounce, projects a ballistic stream of irritant out to a range of 8 feet, contains approximately 30-33 seconds of discharge, contains an ultraviolet dye
- 3. Sabre, 5% OC and 2% CS, 1.5 ounces, projects a ballistic stream of irritant out to a range of 10 feet, contains approximately 36-39 seconds of discharge, contains an ultraviolet dye
- 4. Sabre Lady Magnum, 5% OC, and 2% CS, 3 ounces projects a ballistic stream of irritant out to a range of 10 feet, contains an ultraviolet dye
- 5. Sabre, 5% OC and 2% CS, 4 ounces, projects a ballistic stream of irritant out to a range of 12 feet, contains approximately 40-45 seconds of discharge, contains an ultraviolet dye
- 6. Frontiersman, 15% OC, 3 ounces, projects irritant out into a heavy fog, contains an ultraviolet marking dye
- 7. Frontiersman, 15% OC, 9 ounces, projects irritant out into a heavy fog, contains an ultraviolet marking dye
- 8. Frontiersman, 15% OC, 16 ounces, projects irritant out into a heavy fog, contains an ultraviolet marking dye

#### **Zarc International, Inc.**

(All Cap-Stun® products are rated at 1,500,000 SHU, all Cap-Stun products use Isopropyl Alcohol as a carrier)

- Cap-Stun® Undercover Unit, 5.5% OC, 0.31 ounce, projects a fan shaped pattern of irritant out to a range of 1.8 meters, contains approximately 13 bursts
- Cap-Stun® Standard Duty Unit, 5.5% OC, 1.0 ounce, projects a fan shaped pattern of irritant out to a range of 4.5 meters, contains approximately 6 bursts
- Cap-Stun® Crowd Control Unit, 5.5% OC, 5.0 ounces, projects a fan shaped pattern of irritant out to a range of 6 meters, contains approximately 23 bursts

#### **4. History/Background:**

5. Potential Targets/Applications: Humans and animals. Individual and/or crowd dispersal

6. Primary Users: Civilian, police, military individuals

7. Incapacitation Mechanism/Technology



**(technology, science, chemistry, physics involved):**

Incapacitation is achieved by the burning sensation and the inflammation of the eyes and eyelids, nasal membranes, and respiratory membranes (if inhaled). Temporary blindness may result due to the eyelids swelling shut and/or involuntary closing of the eyes.

## **8. Physical Data**

- a. Size: See Section 3
- b. Weight: See Section 3
- c. Power Requirements: None

## **9. Performance Characteristics**

- a. **Effect on Target:** Individual is incapacitated due to swelling of the eyelids which causes a temporary blindness, which in turn can cause disorientation. If the OC is inhaled, the individual is also incapacitated due to the swelling of the membranes in the respiratory tract which causes difficulty in breathing and reduces the level of physical exertion that the individual can sustain.
- b. **Time to Effect:** Short period of time - instant to a few seconds depending on the mental and physiological state of the individual.
- c. **Duration of Effect:** Approximately 30 minutes
- d. **Range:** Varies from 3 feet to 65 feet

**10. Delivery Means:** Stream of liquid or aerosol spray delivers the pepper powder.

**11. Operational Strengths:** Quick acting agent, easy to decontaminate - simply rinse the affected areas with cool, clean water.

## **12. Operational Limitations**

- a. **Countermeasures:** Pepper powder effectiveness is significantly reduced by a gas mask. The agent will still irritate exposed skin, but will not cause the temporary blindness and difficult breathing associated with swollen membranes.
- b. **Weather, Environment Limitations:** Pepper powder is susceptible to wind patterns and heavy rainfall, operator may be exposed to the agent if he is downwind from the target.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Approximately 40 deaths have been reported after application of pepper spray. Current pepper spray products vary in concentration and in the type of pepper used for the oleoresin capsicum extract. The variation in the type of pepper used results in pepper spray products which possess different levels of effectiveness. Because of this, the level of effectiveness is not accurately represented by the various product labels which claim 5%, 10%, 15%, etc OC formulations. After exposure to OC, an individual should not be hog-tied or placed on his/her stomach. The combination of the inflammatory effects of OC and the effect of physically limiting an individual's breathing capability by placing the individual on his/her stomach can lead to suffocation.

## **13. Requirements Documentation:**

**14. System Developer: 15. Manufacturer/Contractor**

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Aerko International 3410 N.E. 5th Ave. Fort Lauderdale, FL 33334 (305) 565-8475 (305) 565-8499 fax (mailing address) P.O. Box 23884 Fort Lauderdale, FL 33307	1. CLEAR-OUT® Grenade, Model A825, 1% CS and 1% OC, 6 ounces,	1. \$11.95
	2. CLEAR-OUT® Keyholer, Model KHA848, 1% CS and 1% OC, 6 ounces,	\$105.35 (case of 12) 2. \$14.45
	3. CLEAR-OUT® Auto Ejector, Model AEA841, 1% CS and 1% OC, 73 grams,	3. \$13.20
	4. Deep FREEZE®, 1% CS and 1% OC, 15.7 ounces,	4. \$15.80
	5. FREEZE® Plus Concentrate, 1% CS and 0.25% OC, 1 quart	5. \$26.15
	6. FREEZE® Plus Concentrate, 1% CS and 0.25% OC, 1 gallon	6. \$91.50
	7. FREEZE® Plus P Concentrate, 1% CS and 1% OC, 1 quart	7. \$31.60
	8. FREEZE® Plus P Concentrate, 1% CS and 1% OC, 1 gallon	8. \$96.95
	9. FREEZE® Plus, 1% CS and 0.25% OC, ½ ounce,	9. \$6.25
	10. FREEZE® Plus P, 1% CS and 1% OC, ½ ounce,	10. \$6.60
	11. FREEZE® Plus, 1% CS and 0.25% OC, ¾ ounce,	11. \$7.30
	12. FREEZE® Plus P, 1% CS and 1% OC, ¾ ounce,	12. \$7.65
	13. FREEZE® Plus, 1% CS and 0.25% OC, 2 ounces,	13. \$10.35
	14. FREEZE® Plus P, 1% CS and 1% OC, 2 ounces,	14. \$10.85
	15. FREEZE® Plus, 1% CS and 0.25% OC, 4 ounces,	15. \$12.35
	16. FREEZE® Plus P, 1% CS and 0.25% OC, 4 ounces,	16. \$12.85
	17. Deep PUNCH™ II, 5% OC, 9 ounces,	17. \$17.15
	18. PUNCH™ II Concentrate, 5% OC, 1 quart	18. \$31.60
	19. PUNCH™ II Concentrate, 5% OC, 1 gallon	19. \$96.95
	20. M-1, PUNCH™, 1% OC, ½ ounce,	20. \$5.65
	21. M-1, PUNCH™ II, 5% OC, ½ ounce	21. \$6.95
	22. M-1, PUNCH™ III, 5% OC, ½ ounce,	22.
	23. M-2, PUNCH™, 1% OC, ¾ ounce	23. \$6.55
	24. M-2, PUNCH™ II, 5% OC, ¾ ounce	24. \$8.10
	25. M-2, PUNCH™ III, 5% OC, ¾ ounce	25.
		26. \$9.95

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Aerko International 3410 N.E. 5th Ave. Fort Lauderdale, FL 33334 (305) 565-8475 (305) 565-8499 fax (mailing address) P.O. Box 23884 Fort Lauderdale, FL 33307	27. M-3, PUNCH™ II, 5% OC, 2 ounces	27. \$11.15
	28. M-3, PUNCH™ III, 5% OC, 2 ounces	28.
	29. M-4, PUNCH™, 1% OC, 4 ounces	29. \$11.25
	30. M-4, PUNCH™ II, 5% OC, 4 ounces	30. \$12.30
	31. M-4, PUNCH™ III, 5% OC, 4 ounces	31.
	32. M-5-G, PUNCH™ II Grenade, 5% OC, 5 ounces	32. \$11.90
	33. M-5-B, PUNCH™ II Burst Unit	33. \$12.45
	34. M-5-KH, PUNCH™ II Keyholer	34. \$13.15
	1. Avenger*, 10% OC, 3 ounces, (code CW 90)	1. \$18.95
Aero Tech Labs 728 Northwest Seventh Terrace Fort Lauderdale, FL 33311 (305) 463-4584 (305) 463-3013 fax		
Advanced Defense Technologies 1610 South Main Street, Suite B Bountiful, UT 84010 (800) 543-5207 or Suite 112 144 Perrish Lane Centerville, UT 84014 (800) 854-8401 (801) 298-7942 fax	This company was contacted and information was requested, however, this company did not reply.	

Pepper Spray Suppliers		
Supplier	Product Name	Cost
B-Safe Industries, Inc. P.O. Box 153-H Scarsdale, NY 10583-8653 (914) 723-2553 (914) 725-2925 fax	1. Self Defense Key Chain Unit, 5% OC, ½ ounce ,(code D969-15)	1. \$7.95
	2. Personal Size Spray, 5% OC, 2 ounces, (code D850-02)	2. \$7.95
	3. Standard Duty Size, 5% OC, 4 ounces, (code D953-04)	3. \$7.95
	4. Tossable Grenade, 5% OC, 6 ounces, (code D957-06)	4. \$13.95
	5. Tossable Mini Grenade, 5% OC, 2 ounces, (code D952-02)	5. \$12.75
	6. Crowd Control, 5% OC, 6 ounces, (code D955-06)	6. \$15.95
	7. Injector Kit (for item 6), (code D956-00)	7. \$7.50
	8. Magnum, 5% OC, 16 ounces, (code D958-16/05)	8. \$31.50
	9. Magnum 10% OC, 16 ounces, (code D958-16/10)	9. \$39.95
	10. Mega, 5% OC, 5 ½ lbs., (D959-05)	10. \$395.00
	11. Mega, 10% OC, 5 ½ lbs., (D960-10)	11. \$425.00
	12. Mega Refill Kit, 5% OC, 5 ½ lbs., (code D961-05)	12. \$125.00
	13. Mega Refill Kit, 10% OC, 5 ½ lbs., (code D962-10)	13. \$165.00
	14. Colossus Unit, 10% OC, (code D965-10)	14. NA
	15. Colossus Refill Kit, 10% OC, (code D966-10)	15. NA
Casco International, Inc. P.O. Box 166 Fitzwilliam, NH 03447 (800) 882-7011 (603) 585-9422 (603) 585-9575 fax	This company was contacted and information was requested, however, this company did not reply.	

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Chief Supply P.O. Box 22710 Eugene, OR 97402 (800) 824-4338 (800) FAX-2003 fax	1. Pensize, 10% OC, (code PD-PEN) 2. Stream, 10% OC, 2 ounces, (code PD-11M-2) 3. Stream, 10% OC, 4 ounces, (code PD-11M-4) 4. Fogger, 10% OC, 2 ounces, (code PD-2OZ) 5. Fogger, 10% OC, 4 ounces, (code PD-4OZ) 6. Fogger, 10% OC, 16 ounces, (code PD-16OZ) 7. Foam, 10% OC, 2 ounces, (code BSFO2) 8. Foam, 10% OC, 4 ounces, (code BSFO4)	1. \$5.95 2. \$7.95 3. \$8.95 4. \$7.95 5. \$8.95 6. \$39.95 7. \$9.95 8. \$9.95
Counter Assault Box 4721 Missoula, MT 59806 (800) 695-3394 (406) 728-6241 local (406) 728-8800 fax	1. Self Defense Canister, 10% OC, 1.75 ounces 2. Duty Belt Canister, 10% OC, 4 ounces 3. Bear Repellent Canister, 10% OC, 15 ounces	1. \$15.95 or \$114.00 for case of 12 2. \$19.95 or \$120.00 for case of 12 3. \$39.95 or \$264.00 for case of 12

Pepper Spray Suppliers		
Supplier	Product Name	Cost
CSP International, Inc. 4349 Okeechobee Blvd., Bldg. E-6 West Palm Beach, Florida 33409 (407) 697-8832 (407) 471-7051 fax Order line: 1-800-783-6695	1. Pen spray 2. Flair pen 3. ½ ounces clip-on holder 4. ½ ounces holster holder 5. ¾ ounces clip-on holder 6. ¾ ounces holster holder 7. 2 ounces aerosol nozzle with twist-lock 8. 3 ounces aerosol nozzle with twist-lock 9. 3 ounces spray with fire extinguisher type handle 10. 4 ounce aerosol nozzle with twist-lock 11. 4 ounces spray with fire extinguisher type handle 12. 9 ounces spray with fire extinguisher type handle	1. \$3.00 2. \$3.00 3. \$2.95 4. \$3.50 5. \$2.95 6. \$3.95 7. \$4.50 8. \$4.95 9. \$6.95 10. \$4.95 11. \$6.95 12. \$8.95 The price given is the unit price when buying a quantity of 12.
Defense Technology Corporation P.O. Box 240 Casper, WY 82602-0240 (800) 733-3832 (307) 473-2605 (307) 473-2605 fax	1. Mk-III First Defense, 10% OC, 1.47 ounces, (code 5039) 2. Mk-IV First Defense, 10% OC, 3.0 ounces, (code 5049) 4. Mk-VI First Defense, 10% OC, 0.68 ounces, (code 5069) 5. Mk-IX First Defense, 10% OC, 12.0 ounces, (code 5099) 6. Mk-21 First Defense, 10% OC, 21.0 ounces, (code 5721) 7. Mk-46 First Defense, 10% OC, 46.0 ounces, (code 5746)	1. \$7.96 2. \$9.56 3. \$7.60 4. \$34.36 5. \$126.40 6. \$126.40 7. \$140.00 refill \$49.00 refill \$54.80

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Guardian Protective Devices P.O. Box 133 West Berlin, NJ 08091 (800) 220-2010 (609) 753-7405 (609) 753-7613 fax	1. PepperGas™ Home Unit, 11% OC, 3.0 ounces, (code 3PGC) 2. Alaskan Magnum, 10% OC, 4 ounces, (code 4AMF) 3. Alaskan Magnum, 10% OC, 9 ounces, (code 9AMF) 4. Alaskan Magnum, 10% OC, 15 ounces, (code 15AMF)	1. \$14.95 2. \$25.95 3. \$39.95 4. \$53.95
Guardian Security Products 21639 North 14th Avenue Phoenix, AZ 85027 (800) 527-4434 (602) 582-1070 (602) 582-2133 fax	This company was contacted and information was requested, however, this company did not reply.	
Knock-Out Security Products 4872 SW 72nd Avenue Miami, FL 33155 Customer Service (305) 661-9990 Order Line (800) 394-SAFE Fax (305) 661-1102	1. Knock-Out 3 ounces Pepper Spray Unit, (code KO-013) 2. Knock-Out 4 ounces Pepper Spray with Fire Master Handle, (code KO-015) 3. Knock-Out Pen Size Pepper Spray Unit, (code KO-017) 4. Knock-Out ½ ounce Pepper Spray Unit, (KO-018)	1. \$19.95 2. \$22.95 3. \$14.95 4. \$14.95 These are retail prices.

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Mace Security International Law Enforcement Division 160 Benmont Avenue Bennington, Vermont 05201 USA (800) 639-4530 (802) 447-7713 (800) 545-6223 fax	1. MK-III, PEPPERMACE®, 5.5% OC, 1.62 ounces, (code 3005)	1. \$10.75
	2. MK-IVB, PEPPERMACE®, 5.5% OC, 3.00 ounces, (code 4005)	2. \$12.95
	3. MK-V, PEPPERMACE®, 5.5% OC, 1.76 ounces, (code 5005)	3. \$16.95
	4. MK-VI, PEPPERMACE®, 5.5% OC, 0.60 ounce, (code 6005)	4. \$10.25
	5. MK-VII, PEPPERMACE®, 5.5% OC, 0.35 ounce, (code 7005)	5. \$9.10
	6. MK-VIII, PEPPERMACE®, 5.5% OC, 1.06 ounces, (code 8005)	6. \$43.00
	7. MK-IX, PEPPERMACE®, 5.5% OC, 18.34 ounces (code 9005)	7. \$33.00
	8. MK-XI, PEPPERMACE®, 5.5% OC, 2.47 ounces, (code B005)	8. \$10.75
	9. MK-XII, PEPPERMACE®, 5.5% OC, 4.23 ounces, (code C005)	9. \$12.95
	10. MK-XIII, PEPPERMACE®, 5.5% OC, 1.62 ounces, (code D005)	10.
	11. MK-III, PEPPER 10™, 10% OC, 1.62 ounces, (code 3025)	11. \$10.75
	12. MK-IVB, PEPPER 10™, 10% OC, 3.17 ounces, (code 4025)	12. \$12.95
	13. MK-VI, PEPPER 10™, 10% OC, 0.60 ounce, (code 6025)	13. \$10.25
	14. MK-VII, PEPPER 10™, 10% OC, 0.35 ounce, (code 7025)	14. \$9.10
	15. MK-VIII, PEPPER 10™, 10% OC, 1.06 ounces, (code 8025)	15.
	16. MK-III, PEPPER Foam™, 10% OC, 2.36 ounces, (code	16. \$11.61
		17. \$13.99
		18. \$36.00
		19. \$12.87
		20. \$11.25
		21. \$13.50
		22. \$10.60
		23. \$9.45



Pepper Spray Suppliers		
Supplier	Product Name	Cost
Mace Security International Law Enforcement Division 160 Benmont Avenue Bennington, Vermont 05201 USA (800) 639-4530 (802) 447-7713 (800) 545-6223 fax	24. MK-VIII, Pepper-Fortified MACE°, CN/OC, 1.09 ounces, (code 8000)	24. \$45.00
	25. MK-IX, Pepper-Fortified MACE°, CN/OC, 18.34 ounces, (code 9000)	25. \$35.00
	26. MK-X, Pepper-Fortified MACE°, CN/OC, 0.60 ounces, (code A000)	26. \$10.50
	27. MK-III, Pepper-Fortified MACE°, CS/OC, 1.76 ounces (code 3030)	27. \$10.75
	28. MK-IVB, Pepper-Fortified MACE°, CS/OC, 3.35 ounces, (code 4030)	28.
	29. MK-VI, Pepper-Fortified MACE°, CS/OC, 0.63 ounces (code 6030)	29.
	30. MK-VIII, Pepper-Fortified MACE°, CS/OC, 1.09 ounces, (code 8030)	30.
Omega Securities, Inc. P.O. Box 1 Marlow, NH 03456-0001 (603) 446-7595	31. MK-IX, Pepper-Fortified MACE°, CS/OC, 18.34 ounces, (code 9030)	31.
	1. Personal Defense Unit, 1% Capsaicin, 1.0 ounces 2. Riot Control Unit, 1% Capsaicin, 1 pint 3. Barricade Weapon, 1% Capsaicin, 12.0 ounces	
	1. RiotMASTER I° Backpack Model, 1.7 KG 2. RiotMASTER II° Backpack Model, 3.4 KG 3. Devastator° 4. First Defense° 5. Protectojet° 6. BodyGuard Plus°	1. \$149, refill kit \$60 2. \$329, refill kit \$80 3.
1 Mark Inc. 2300 W. Sahara Avenue Suite 500 Las Vegas, NV 89102 (702) 367-1107		

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Performance Dimensions, Inc. P.O. Box 502 Powers Lake, WI 53159-0502 (800) 877-7413 (414) 279-3850 (414) 279-5758 fax	1. PRO-AER, fog spray , 5% OC, 0.75 ounce, (code M-25F)	1. \$8.95
	2. PRO-AER, streamer, 5% OC, 0.75 ounce, (code M-25S)	2. \$8.95
	3. PRO-AER, cone shaped fog, 5% OC, 2 ounces, (code M-58)	3. \$9.45
	4. PRO-AER, cone shaped fog, 5% OC, 3 ounces, (code M-85)	4. \$10.45
	5. PRO-AER, cone shaped fog, 5% OC, 4 ounces, (code M-120)	5. \$11.45
	6. PRO-AER, fog spray blast, 5% OC, 3 ounces, (code FM-85)	6. \$12.95
	7. PRO-AER, fog spray blast, 5% OC, 4 ounces, (code FM-120)	7. \$14.45
	8. PRO-AER, fog cloud, 5% OC, 6 ounces, (code HG-175)	8. \$15.95
	9. PRO-AER, fog spray, 5% OC, 6 ounces, (code HG-175)	9. \$23.45
	10. Guardian Bullet Head, 5% OC, 2 ounces, (code G-BH02)	10. \$8.45
	11. Guardian Bullet Head, 5% OC, 3 ounces, (code G-BH03)	11. \$10.45
	12. Guardian Bullet Head, 5% OC, 4 ounces, (code G-BH04)	12. \$12.45
	13. Guardian Refillable Unit, 5% OC, 1/2 ounce, (code G-RF07)	13. \$7.45
	14. Guardian Refill for 1/2 ounce Unit, (code G-RC08)	14. \$5.45
	15. Guardian Refillable Key Ring Unit, 5% OC, (code G-RF06)	15. \$7.45
	16. Guardian Refill for Key Ring Unit, 5% OC, (code G-RC09)	16. \$5.45
	17. Pen Unit, 5% OC, 1/2 ounce, (code G-PU05)	17. \$6.95
	18. Guardian Grenade, 5% OC, 6 ounces, (code G-GR10)	18. \$11.95
	19. Guardian Extraction Device, 5% OC, 6 ounces, (code G-GR11)	19. \$14.95
	20. Guardian Entry Unit, 5% OC, 9 ounces, (code GEU12)	20. \$22.45
	21. Guardian Entry Unit, 5% OC, 1 lb, (code GEU13)	21. \$25.45
	22. Guardian Entry Unit, 5% OC, 1.5 lb, (code GEU14)	22. \$29.45
		23. \$6.25
		24. \$7.95
		25. \$8.95
		26. \$8.95

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Performance Dimensions, Inc. P.O. Box 502 Powers Lake, WI 53159-0502 (800) 877-7413 (414) 279-3850 (414) 279-5758 fax	27. Devastator® Magnum Unit, 5% OC, 16 ounces, (code D-175)	27. \$25.75
	28. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	28. \$30.25
	29. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	29. \$4.75
	30. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	30. \$5.45
	31. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	31. \$10.95
	32. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	32. \$27.45
	33. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	33. \$8.95
	34. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	34. \$10.95
	35. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	35. \$8.95
	36. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	36. \$10.95
	37. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	37. \$9.45
	38. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	38. \$11.45
	39. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	39. \$29.95
	40. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	40. \$3.45
	41. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	41. \$3.95
	42. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	42. \$4.95
	43. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	43. \$5.95
	44. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	44. \$6.45
	45. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	45. \$8.25
	46. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	46. \$9.95
	47. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	47. \$11.45
	48. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	48. \$3.95
	49. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	49. \$9.75
	50. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	50. \$11.95
	51. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	51. \$17.75
	52. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	52. \$9.45
	29. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	30. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	31. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	32. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	33. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	34. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	35. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	36. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	37. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	38. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	39. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	40. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	41. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	42. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	43. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	44. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	45. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	46. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	47. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	48. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	49. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	50. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	51. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	
	52. Devastator® Magnum Unit, 10% OC, 16 ounces, (code D-176)	

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Performance Dimensions, Inc. P.O. Box 502 Powers Lake, WI 53159-0502 (800) 877-7413 (414) 279-3850 (414) 279-5758 fax	53. MK-IX, FIRST DEFENSE <sup>2</sup> , 10% OC, 18.5 ounces, (code F-5099)	53. \$44.95
	54. Flashlight and Pepper Spray, 5% OC, ½ ounce, (code STOP)	54. \$13.95
	55. Refill for Flashlight and Pepper Spray Unit, 5% OC, ½ ounce	55. \$5.45
Phoenix Systems Inc. P.O. Box 3339 Evergreen, CO 80439 (303) 277-0305 (303) 278-8101	1. Punch II 5%, 3/4 ounce	1. \$12.50
	2. Punch II 5%, 2 ounces	2. \$16.50
	3. Punch II 5%, 4 ounces	3. \$19.95
	4. Punch II Gas Grenade 5%	4. \$13.95
	5. Super Blaster Dispenser 10%, 3 ounces	5. \$24.95
	6. Super Blaster Dispenser 10%, 9 ounces	6. \$39.95
	7. Super Blaster Dispenser 10%, 16 ounces	7. \$49.95
	8. Freeze (CS Gas), 3/4 ounce	8. \$6.95
	9. Freeze (CS Gas), 2 ounces	9. \$9.95
	10. Freeze (CS Gas), 4 ounces	10. \$12.50
	11. CS Tear Gas Grenade	11. \$10.95
		These are retail prices.

Pepper Spray Suppliers		
Supplier	Product Name	Cost
Pro-Aer International Division of Personal Security Systems 1298 Crosby Avenue Bronx, NY 10461 (718) 863-7780 (718) 822-9273 fax	1. PRO-AER, fog spray , 5% OC, 0.75 ounce, (code M-25F) 2. PRO-AER, streamer, 5% OC, 0.75 ounce, (code M-25S) 3. PRO-AER, cone shaped fog, 5% OC, 2 ounces, (code M-58) 4. PRO-AER, cone shaped fog, 5% OC, 3 ounces, (code M-85) 5. PRO-AER, cone shaped fog, 5% OC, 4 ounces, (code M-120) 6. PRO-AER, fog spray blast, 5% OC, 3 ounces, (code FM-85) 7. PRO-AER, fog spray blast, 5% OC, 4 ounces, (code FM-120) 8. PRO-AER, crowd fogger, 5% OC, 18.6 ounces, (code CF-630) 9. PRO-AER, fog spray w/ hose, 5% OC, 16 ounces, (code LP-560) 10. PRO-AER, fog spray refill, 5% OC, 16 ounces, (code LP-560) 11. PRO-AER, Cone Spray, 5% OC, 5.5 lbs., (code CC-5.5) 12. PRO-AER, Cone Spray refill, 5% OC, 5.5 lbs.,(code CC-5.5)	1. \$8.40 2. \$8.40 3. \$8.85 4. \$9.35 5. \$9.85 6. \$13.50 7. \$14.50 8. \$39.95 9. \$85.50 10. \$35.00 11. \$315.00 12. \$85.00
S&J Products and Services 1005 N. 1st Street Yakima, WA 98901 (800) 735-1797 (509) 575-1875	1. Security Plus* Pepper Spray 3/4 ounce Pen Unit 2. Fountain Pen Pepper Sprayer 3. Security Plus* Pepper Spray 2 ounces & 4 ounces Units 4. Security Plus* 4 ounces Fogger	1. & 2. 2 to 99 units \$3.95, 100+ units \$1.98, retail \$9.95 3. for 2 ounces 2 to 99 units \$4.95, 100+ units \$3.50, retail \$22.95; for 4 ounces 2 to 99 units \$5.95, 100+ units \$3.95, retail \$24.95 4. 2 to 99 units \$5.95, 100+ units \$4.25, retail \$24.95

Pepper Spray Suppliers		
Supplier	Product Name	Cost
The Safety Source 1860 Berkshire Lane North Plymouth, Minnesota 55441 (612) 559-5539 (612) 559-2286 fax	1. SmartGuard™ Keychain Spray, 10% OC, ½ ounce, (code 00101) 2. SmartGuard™ Quick Release, 10% OC, ½ ounce, (code 00108) 3. SmartGuard™ Flair Pen, 10% OC, ½ ounce, (code 00106) 4. SmartGuard™ Flair Pen, 10% OC, ¾ ounce, (code 00105) 5. SmartGuard™ Fogger, 10% OC, 3 ounces, (code 00103) 6. SmartGuard™ Firemaster Top, 10% OC., 9 ounces, (code 00109)	1. \$6.99 2. \$6.99 3. \$5.99 4. \$5.99 5. \$8.99 6. \$19.99
	1. Sabre, 5% OC and 2% CS, ½ ounce, (code KR-14) 2. Sabre, 5% OC and 2% CS, ¾ ounce, (code P-22) 3. Sabre, 5% OC and 2% CS, 1.5 ounces, (code M-35) 4. Sabre Lady Magnum, 5% OC, and 2% CS, 3 ounces (code LM-80) 5. Sabre, 5% OC and 2% CS, 4 ounces, (code M-120) 6. Frontiersman, 15% OC, 3 ounces, (code FM-80-OC) 7. Frontiersman, 15% OC, 9 ounces, (code FM-80-OC) 8. Frontiersman, 15% OC, 16 ounces, (code FM-80-OC)	1. \$4.17 2. \$4.17 3. \$4.77 4. \$7.75 5. \$5.97 6. \$9.44 7. \$12.08 8. \$18.56 Note: prices are quoted for a minimum of 24 units purchased, Frontiersman models are quoted for 12 units purchased
Zarc International, Inc. P.O. Box 5800 Bethesda, MD 20824 (800) 882-7011 (301) 564-3737 fax	1. Cap-Stun® Undercover, 5.5% OC, 0.31 ounce, (code Z-205) 2. Cap-Stun® Standard Duty, 5.5% OC, 1.0 ounce, (code Z-305) 3. Cap-Stun® Crowd Control, 5.5% OC, 5.0 ounces, (code Z-505)	

**16. Cost: See above table**

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**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** MILITARY SMOKE GRENADES (M-18) FROM A COMMERCIAL SOURCE

**3. Photograph/Description:** Device produces dense smoke which stays near the ground rather than rising. Device is waterproof and impact resistant. Device produces 250,000 cubic feet of smoke in 50 to 90 seconds. Fuse produces delay of 1 to 2 seconds. Available in white, red, or green smoke.

**4. History/Background:**

**5. Potential Targets/Applications:** The device can be used for signaling or screening.

**6. Primary Users:** Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Visual obscuration

**8. Physical Data**

- a. Size: 6 inches tall, 2 ½ inch diameter
- b. Weight: 19 ounces
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Visual obscuration
- b. Time to Effect: Maximum time to effect is 50 to 90 seconds
- c. Duration of Effect: Depends on the weather and wind conditions
- d. Range: Device is hand thrown.

**10. Delivery Means:** Device is hand thrown

**11. Operational Strengths:** Simple to use, proven capability

**12. Operational Limitations**

- a. Countermeasures: None
- b. Weather, Environment Limitations: Strong winds and heavy rain may reduce the effectiveness of the smoke.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
None known

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Supplier:  
Phoenix Systems Inc.  
P.O. Box 3339  
Evergreen, CO 80439  
(303) 277-0305  
(303) 278-8101 fax

**16. Cost:**

M-18 White Smoke	\$54.95	(Code 530H)
M-18 Red Smoke	\$54.95	(Code 534H)
M-18 Green Smoke	\$54.95	(Code 536H)

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 2 CONTINUOUS DISCHARGE GRENADE (SMOKE)

**3. Photograph/Description:** Canister-type grenade with pelletized chemical agent and fly-off fuze. The grenade is either launched from a weapon or thrown by hand. The smoke discharges from one port on the bottom and four ports on top of the canister.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Smoke generated is used to confuse individuals and obscure vision.

**8. Physical Data**

a. **Size:** 6.3 inch length x 2.6 inch diameter

b. **Weight:** 29.8 ounces for smoke

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Confuse, obscure vision

b. **Time to Effect:** Short period of time

c. **Duration of Effect:** The smoke discharges for 1.5 to 2 minutes

d. **Range:** 90 yards when launched

**10. Delivery Means:** Grenade is either hand thrown or launched. It is launchable from a 37/38 mm gun utilizing the No. 32 launching cup and No. 36 launching cartridge from Defense Technologies Corp. It is launchable from a 12 gauge shotgun utilizing the No. 33 launching cup and the No. 35 launching cartridge from Defense Technologies Corp.

**11. Operational Strengths:** Simple to use, proven capability

**12. Operational Limitations**

a. **Countermeasures:** None

b. **Weather, Environment Limitations:** Strong winds and heavy rain may reduce the effectiveness of the smoke.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
None known

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 3 CONTINUOUS DISCHARGE GRENADE ( SMOKE)

**3. Photograph/Description:** Canister-type grenade with pelletized smoke agent and fly-off fuze. The grenade is either launched from a weapon or thrown by hand. The smoke discharges from one port on the bottom and four ports on top of the canister.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Smoke is used to confuse individuals and obscure vision.

**8. Physical Data**

- a. Size: 6 inch length x 2.3 inch diameter
- b. Weight: 26.8 ounces for smoke
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Causes confusion and obscures vision
- b. Time to Effect: Short period of time
- c. Duration of Effect: The smoke discharges for 1.5 to 2 minutes.
- d. Range: 90 yards when launched

**10. Delivery Means:** Grenade is either hand thrown or launched. This device will not function in the older style "large" launching cups. It is launchable from a 37/38 mm gun utilizing the No. 32 launching cup and No. 36 launching cartridge from Defense Technologies Corp. It is launchable from a 12 gauge shotgun utilizing the No. 33 launching cup and the No. 35 launching cartridge from Defense Technologies Corp.

**11. Operational Strengths:** Simple to use, proven capability.

**12. Operational Limitations**

- a. Countermeasures: None
- b. Weather, Environment Limitations: Strong winds and heavy rain may reduce the effectiveness of the smoke.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: None known

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 4 TRIPLE CHARGER GRENADE (SMOKE)

**3. Photograph/Description:** Canister-type grenade which is designed to break up into three sections so that the smoke can be dispersed in a wide area. The grenade is either launched from a weapon or thrown by hand. .

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Smoke is used to confuse individuals and obscure vision.

**8. Physical Data**

- a. **Size:** 6.5 inch length x 2.4 inch diameter
- b. **Weight:** 17 ounces for smoke
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Causes confusion and obscures vision
- b. **Time to Effect:** Short period of time
- c. **Duration of Effect:** Discharges for 20 to 30 seconds
- d. **Range:** 90 yards when launched

**10. Delivery Means:** Grenade is either hand thrown or launched. It is launchable from a 37/38 mm gun utilizing the No. 32 launching cup and No. 36 launching cartridge from Defense Technologies Corp. It is launchable from a 12 gauge shotgun utilizing the No. 33 launching cup and the No. 35 launching cartridge from Defense Technologies Corp.

**11. Operational Strengths:** Simple to use, proven capability

**12. Operational Limitations**

- a. **Countermeasures:** None
- b. **Weather, Environment Limitations:** Strong winds and heavy rain may reduce the effectiveness of the smoke.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
None known

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:**



**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 15 RUBBER BALL GRENADE (SMOKE)

**3. Photograph/Description:** The grenade has a rubber body, pelletized smoke agent inside, and a fly-off fuze. The grenade is either launched from a weapon or thrown by hand. The smoke discharges from four ports on the side of the grenade.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Smoke is used to confuse individuals and obscures vision.

**8. Physical Data**

- a. **Size:** 5.2 inch length x 3.1 inch diameter
- b. **Weight:** 11.4 ounces for smoke
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Causes confusion and obscures vision
- b. **Time to Effect:** Short period of time
- c. **Duration of Effect:** Discharges for 15 seconds.
- d. **Range:** 90 yards when launched

**10. Delivery Means:** Grenade is either hand thrown or launched. It is launchable from a 12 gauge shotgun utilizing the No. 34 launching cup and the No. 35 launching cartridge from Defense Technologies Corp.

**11. Operational Strengths:** Simple to use, proven capability

**12. Operational Limitations**

- a. **Countermeasures:** None
- b. **Weather, Environment Limitations:** Strong winds and heavy rain may reduce the effectiveness of the smoke.
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** None known

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:**

**Latest Revision Date:** October 12, 1995

**1. Status:** Currently Available

**2. Weapon Name:** NO. 98 TACTICAL CONTINUOUS DISCHARGE GRENADE (SMOKE)

**3. Photograph/Description:** This very compact grenade has aluminum body with pelletized smoke agent. The grenade is either launched from a shotgun or thrown by hand. The smoke discharges from one port on the bottom canister.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Smoke is used to confuse individuals and obscure vision.

**8. Physical Data**

- a. Size: 5 inch length x 1.4 inch diameter
- b. Weight: 6 ounces
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Causes confusion and obscures vision
- b. Time to Effect: Short period of time
- c. Duration of Effect: Smoke discharges for 25 seconds.
- d. Range: 90 yards when launched

**10. Delivery Means:** Grenade is either hand thrown or launched with a shotgun. It is launchable from a 12 gauge shotgun utilizing the No. 100 launching cup/TKO stand-off and the No. 35 launching cartridge from Defense Technologies Corp. When launching the No. 98, remove fuze assembly prior to launching (as the launching cartridge will ignite the device without the use of the fuze assembly).

**11. Operational Strengths:** Simple to use, proven capability

**12. Operational Limitations**

- a. Countermeasures: None
- b. Weather, Environment Limitations: Strong winds and heavy rain may reduce the effectiveness of the smoke.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: None known

**13. Requirements Documentation: None**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:**

**Latest Revision Date: October 12, 1995**

**1. Status: Currently Available**

**2. Weapon Name: 37 MM SMOKE PROJECTILE**

**3. Photograph/Description:** This 37 mm projectile is used to deploy smoke for various situations. It can be used to disperse crowds or to verify wind direction before firing other chemical agents. The projectile has an aluminum body, and the smoke is available in several colors. This projectile may cause fires, so only outdoor use is recommended.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd dispersal

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**  
**(technology, science, chemistry, physics involved):**  
Smoke is used to confuse individuals and obscure vision.

**8. Physical Data**

- a. Size:
- b. Weight:  $220 \pm 4$  grams
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Causes confusion and obscures vision
- b. Time to Effect: Short period of time
- c. Duration of Effect: 15 to 35 seconds
- d. Range: 150 yards

**10. Delivery Means:** 37 mm projectile launcher

**11. Operational Strengths:** Simple to use, proven capability

**12. Operational Limitations**

- a. Countermeasures: None
- b. Weather, Environment Limitations: Strong winds and heavy rain may reduce the effectiveness of the smoke.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: None known

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Mace Security International  
Federal Laboratories Division  
160 Benmont Avenue  
Bennington, Vermont 05201 USA  
Tel: (802) 447-7713  
Fax: (802) 442-3823

**16. Cost:**

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 17 LONG AND SHORT RANGE PROJECTILE (SMOKE)

**3. Photograph/Description:** No. 17 has an aluminum-cased payload and is in a 37 mm shell case. It is good for outdoor situations where large amounts of smoke need to be dispersed while maintaining safe stand-off distances. The smoke is dispersed through burning. It is used for outdoor situations since it has fire potential.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Smoke is used to confuse individuals and obscure vision.

**8. Physical Data**

a. **Size:** Length = 5.5 inch, caliber = 1.5 inch (37/38 mm)

b. **Weight:** 7.9 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Causes confusion and obscures vision

b. **Time to Effect:** Short period of time

c. **Duration of Effect:** The smoke is discharged for 20 to 30 seconds.

d. **Range:** 75 to 150 yards.

**10. Delivery Means:** It is delivered in a 37/38 mm shell.

**11. Operational Strengths:** Simple to use, proven capability

**12. Operational Limitations**

a. **Countermeasures:** None

b. **Weather, Environment Limitations:** Strong winds and heavy rain may reduce the effectiveness of the smoke.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
Has fire start potential.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:**



**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** 37 MM NO. 19 MULTIPLE PROJECTILE ( SMOKE )

**3. Photograph/Description:** No. 19 was designed for outdoor use situations where a wide dispersal of smoke is desired. The payload has 5 sub-munitions which separate when fired.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control, mob dispersal

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Smoke is used to confuse individuals and obscure vision.

**8. Physical Data**

a. **Size:** Length = 8 inches, caliber = 1.5 inches (37/38 mm)

b. **Weight:** 11.8 ounces

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Causes confusion and obscures vision

b. **Time to Effect:** Short period of time

c. **Duration of Effect:** Smoke discharges for 20 to 30 seconds

d. **Range:** 20 to 30 yards

**10. Delivery Means:** Grenade is fired from a 37 mm gas gun.

**11. Operational Strengths:** Simple to use, proven capability

**12. Operational Limitations**

a. **Countermeasures:** None

b. **Weather, Environment Limitations:** Strong winds and heavy rain may reduce the effectiveness of the smoke.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
None known

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Defense Technology Corp. of America  
P.O. Box 240  
2136 Oil Drive  
Casper, Wyoming 82604-1511  
(800) 733-3832 or (307) 235-2136  
(307) 473-2605 fax

**16. Cost:**

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M359Q BURSTING OBSCURANT SMOKE GRENADE<sup>tm</sup>  
M359S BURSTING OBSCURANT SMOKE GRENADE<sup>tm</sup>

**3. Photograph/Description:** These grenades produce smoke very quickly for various tactical situations. The M359Q produces a smoke cloud that can rise to two or three stories. The M359S produces the same amount of smoke but due to larger particle of the smoke mix stay near the ground for an extended smoke duration.

**4. History/Background:**

**5. Potential Targets/Applications:** Crowd control

**6. Primary Users:** Law enforcement, military

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Smoke may cause confusion and obscure vision.

**8. Physical Data**

- a. Size: M359Q: 2 3/4 inch diameter, 3 5/8 inches long  
M359S: 2 3/4 inch diameter, 3 5/8 inches long
- b. Weight: M359Q: 7 ounces  
M359S: 7 ounces
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Smoke may cause confusion and obscure vision.
- b. Time to Effect: Instantaneous
- c. Duration of Effect: 30 seconds for the M359Q, 60 seconds for the M359S
- d. Range:

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

- a. Countermeasures: Gas mask
- b. Weather, Environment Limitations: Wind may effect the smoke dispersion.
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:  
One shot grenades.

**13. Requirements Documentation: None**

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

<b>16. Cost:</b>	M359Q:	\$40.00 each	\$960.00 per case (24 per case)
	M359S:	\$45.00 each	\$1080.00 per case (24 per case)

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** OBSCURANT SMOKE-MUZZLE BLAST (37MM/38MM)

**3. Photograph/Description:** This round emits a dense cloud of white opaque smoke. The cloud has a range of 10 meters. The grenade is used for screening movement or obscuring vision.

**4. History/Background:**

**5. Potential Targets/Applications:** Tactical operations, crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

The smoke may cause confusion. Also, the smoke may obscure vision.

**8. Physical Data**

a. **Size:** 1 1/2 inch diameter, 4 5/8 inches long

b. **Weight:** 4.5 ounces

c. **Power Requirements:** Fired from a 37mm/38mm gas gun

**9. Performance Characteristics**

a. **Effect on Target:** The smoke may cause confusion. Also, the smoke may obscure vision.

b. **Time to Effect:** Minutes

c. **Duration of Effect:** Until smoke is totally dispersed

d. **Range:** 10 meters from the gas gun.

**10. Delivery Means:** Round is fired from a 37mm/38mm gas gun.

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:**

b. **Weather, Environment Limitations:** Wind may effect the dispersion of the smoke. The user should be upwind of the target.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454

Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$600.00 per case (24 rounds per case)

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** OBSCURANT SMOKE™ (12 gauge)

**3. Photograph/Description:** This round emits a dense cloud of white opaque smoke. The grenade is used for screening movement or obscuring vision.

**4. History/Background:**

**5. Potential Targets/Applications:** Tactical operations, crowd control

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

The smoke may cause confusion. Also, the smoke may obscure vision.

**8. Physical Data**

a. **Size:**1 12 gauge, 2 3/4 inches long

b. **Weight:** 1 ounce

c. **Power Requirements:** Fired from a shotgun.

**9. Performance Characteristics**

a. **Effect on Target:** The smoke may cause confusion. Also, the smoke may obscure vision.

b. **Time to Effect:** Seconds to minutes

c. **Duration of Effect:** Until smoke is totally dispersed

d. **Range:**

**10. Delivery Means:** Round is fired from a shotgun.

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:**

b. **Weather, Environment Limitations:** Wind may effect the dispersion of the smoke. The user should be upwind of the target.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
One shot round

**13. Requirements Documentation:** None

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454

Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** \$5.50 each  
\$500.00 per case (100 rounds per case)



**Latest Revision Date:** October 11, 1995

**1. Status:** Currently Available

**2. Weapon Name:** QB-SLUG AND ENHANCED PENETRATION SLUG

**3. Photograph/Description:** These are anti-material slugs which may be used to destroy the cooling, lubricating, ignition and mechanical components of an automobile engine.

**4. History/Background:**

**5. Potential Targets/Applications:** Use in incapacitating an automobile

**6. Primary Users:** Police

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Enhanced penetration capability for penetrating critical metallic engine components

**8. Physical Data**

**a. Size:**

**b. Weight:**

**c. Power Requirements:**

**9. Performance Characteristics**

**a. Effect on Target:**

**b. Time to Effect:**

**c. Duration of Effect:**

**d. Range:**

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

**a. Countermeasures:**

**b. Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
may be fatal if fired at a person

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** MK Ballistic Systems  
2707 Santa Ana Valley Rd.  
P.O. Box 1097  
Hollister, CA 95024  
(408) 636-1504  
(408) 636-8657 fax

<b>16. Cost: QB-Slug (box of 5)</b>	<b>\$29.95</b>	<b>(Code 4500)</b>
Enhanced Penetration Slug (box of 5)	\$8.00	(Code 4600)

**Latest Revision Date:** October 11, 1995

**1. Status:** Near Term (Road Patriot<sup>®</sup>) and Currently Available (Road Sentry<sup>®</sup>)

**2. Weapon Name:** ROAD PATRIOT<sup>®</sup> and ROAD SENTRY<sup>®</sup>

**3. Photograph/Description:** The Road Patriot<sup>®</sup> and Road Sentry<sup>®</sup> permanently disable the electronics and ignition system of automobiles and trucks. The devices generate an electromagnetic pulse which overdrives the electronics and ignition governing components. The Road Patriot<sup>®</sup> installs on the front bumper of the pursuit vehicle. When the vehicle comes within range of the intended vehicle, the device is operated. This causes the device to leave the pursuit vehicle via a rocket propelled sled. When the device arrives under the target vehicle, the device is triggered to generate the electromagnetic pulse, and thus disable the vehicle.

The Road Sentry<sup>®</sup> is a pre-emplaced device which is available in three disguises - garbage can lid, road patch, and sewer cover. Vehicles other than the target vehicle can drive over the device since the device can be command activated. When the target vehicle drives over the device, the device is activated, thus generating an electromagnetic pulse and disabling the vehicle. The magnetic pulse has a peak intensity of 2.4 tesla at one 3 feet. The pulse has a duration of 10 microseconds. The Road Sentry<sup>®</sup> can be activated in two ways. It can be activated by remote control with a receiver range between 50 and 100 feet. At additional cost, models can be customized to receive signal from up to one half mile. The second activation method is automatic control. When that target vehicle passes over the device, the pulse is generated.

**4. History/Background:**

**5. Potential Targets/Applications:** Disabling vehicles

**6. Primary Users:** Law Enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Electromagnetic pulse renders electronic systems inoperative.

**8. Physical Data**

- a. **Size:** The Road Sentry<sup>®</sup> is an oval disk form approximately 42 inch x 28 inch x 3 inch high.
- b. **Weight:**
- c. **Power Requirements:** Conventional 120 or 240 volt single phase service for permanent installation or battery powered for mobile use.

**9. Performance Characteristics**

- a. **Effect on Target:** The devices generate an electromagnetic pulse which overdrives the electronics and ignition governing components.
- b. **Time to Effect:** Instant
- c. **Duration of Effect:** Permanent
- d. **Range:** Device must be underneath the target vehicle (may have to actually be under the engine compartment).

10. **Delivery Means:** The Road Patriot<sup>®</sup> is propelled on a rocket sled. The Road Sentry<sup>®</sup> is hand emplaced.

11. **Operational Strengths:** Provides rapid and safe means of stopping fleeing vehicles.

12. **Operational Limitations**

a. **Countermeasures:** A sharp turn, rapid stop, potholes, speedbumps, or poor aiming could defeat the Road Patriot<sup>®</sup>. Drive around the Road Sentry<sup>®</sup>,

b. **Weather, Environment Limitations:** Both devices are sealed for routine environments.

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

13. **Requirements Documentation:** None

14. **System Developer:** For engineering and production offices:

Non-lethal Technologies, Inc.

1815 Higgins Rd.

Sleepy Hollow, Illinois 60118

Phone: (708) 428-5676

Fax: (708) 426-9217

For sales and marketing offices:

Intercept Technologies International, Inc.

6750 West Loop S. Suite 810

Bellaire, TX 77401

Phone: (713) 782-0086

Fax: (713) 782-3611

15. **Manufacturer/Contractor**

a. **Government:**

b. **Manufacturer:**

16. **Cost:** The Road Patriot<sup>®</sup>:

Car mounted rocket system = \$4500.00

Laser guided rocket system = under development

The Road Sentry<sup>®</sup>:

"Garbage can lid" disguise = \$2490.00

"Road patch" disguise = \$2890.00

"Sewer cover" fixed mount = \$3500.00

**Latest Revision Date:** October 11, 1995

**1. Status:** Near Term

**2. Weapon Name:** BURNETT BARRIER

**3. Photograph/Description:** The barrier is made of nylon ropes which captures a vehicle in the same manner as an aircraft on an aircraft carrier.

**4. History/Background:**

**5. Potential Targets/Applications:**

**6. Primary Users:**

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):** The nylon cables snag the vehicle and after some distance stop the vehicle.

**8. Physical Data**

- a. **Size:** 12 feet
- b. **Weight:** 200 lbs.
- c. **Power Requirements:** None

**9. Performance Characteristics**

- a. **Effect on Target:** Prohibits vehicle from moving after it is stopped
- b. **Time to Effect:** On the order of seconds
- c. **Duration of Effect:** Permanent
- d. **Range:** 10 feet

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations**

- a. **Countermeasures:** Easy to bypass, must deploy in an area that does not allow bypass
- b. **Weather, Environment Limitations:** Outdoor use
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

**13. Requirements Documentation:** None

**14. System Developer:** Burnett Associates, Inc., Framingham, MA

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Burnett Associates  
Point of Contact:  
M. Burnett  
(508) 788-5134

**16. Cost: \$2000.00**

**Latest Revision Date:** October 14, 1995

**1. Status:** Near Term

**2. Weapon Name:** EAGLE TIRE DEFLATOR SYSTEM

**3. Photograph/Description:** Deflates tires by use of deflator bars with retractable steel spikes. Raising and lowering is done by a remotely controlled activating switch.

**4. History/Background:**

**5. Potential Targets/Applications:** Wheeled vehicles.

**6. Primary Users:** Law Enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Steel spikes puncture vehicle tires and cause tires to deflate.

**8. Physical Data**

a. **Size:** 12 feet wide

b. **Weight:** 6 lbs

c. **Power Requirements:** Battery

**9. Performance Characteristics**

a. **Effect on Target:** Deflates tires of vehicle, severely limits the vehicle's mobility

b. **Time to Effect:** Less than one minute

c. **Duration of Effect:** Permanent

d. **Range:** 12 foot wide section of road.

**10. Delivery Means:** Placed on roadway by personnel.

**11. Operational Strengths:**

**12. Operational Limitations**

a. **Countermeasures:** Drive around the barrier strip. Run-flat tires, possibly specialized puncture resistant or extreme off-road (i.e. very deep tread) tires. In an article in the Columbus Dispatch newspaper from Columbus, Ohio on 7/8/95, two teenagers led police on a 60 mile high speed chase even after the car had run over three spike strips. In total, four strips were deployed. The driver missed one strip and ran over three strips which resulted in three flat tires. Even with the three flat tires, the car reached speeds up to 80 mph.

b. **Weather, Environment Limitations:** None

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Re-usable device. The barrier strip must be directly in the path of the fleeing vehicle. There is no stand-off or range capability for the barrier strip. Would have to re-position the barrier strip for

each additional vehicle that needs to be stopped. Recalling the above mentioned article, there arises a question about safety when a car with three flat tires is involved in a high speed chase.

**13. Requirements Documentation: None**

**14. System Developer:** Eagle Research Group Inc.  
1110 North Glebe Road  
Arlington, VA 22201-4795

**15. Manufacturer/Contractor**

**a. Government:**  
**b. Manufacturer:** Eagle Research Group Inc.  
Point of contact:  
Bert Soleaeu  
(703) 312-7152

**16. Cost: \$2,200**



**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** Road Fangs Portable Roadblock

**3. Photograph/Description:** System collapses to less than 2 feet in length and extends to 21 feet. It can be quickly deployed by one man. System is equipped with spikes which deflate tires. In instances when spikes are pulled from the roadblock by a tire, they are retrievable and reusable. System is contained in a carrying case.

**4. History/Background:**

**5. Potential Targets/Applications:** Air-inflated, rubber-tire vehicles.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Steel spikes puncture vehicle tires and cause tires to deflate.

**8. Physical Data**

- a. **Size:** 2 feet when collapsed, 21 feet when deployed
- b. **Weight:** 34 lbs.
- c. **Power Requirements:** none

**9. Performance Characteristics**

- a. **Effect on Target:** Deflates tires of vehicle, severely limits the vehicle's mobility
- b. **Time to Effect:** Less than one minute
- c. **Duration of Effect:** Permanent
- d. **Range:** N/A

**10. Delivery Means:**

**11. Operational Strengths:**

**12. Operational Limitations:**

- a. **Countermeasures:** Drive around the barrier strip. Run-flat tires, possibly specialized puncture resistant or extreme off-road (i.e. very deep tread) tires. In an article in the Columbus Dispatch newspaper from Columbus, Ohio on 7/8/95, two teenagers led police on a 60 mile high speed chase even after the car had run over three spike strips. In total, four strips were deployed. The driver missed one strip and ran over three strips which resulted in three flat tires. Even with the three flat tires, the car reached speeds up to 80 mph.
- b. **Weather, Environment Limitations:**

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**  
System may be used again immediately if spikes remain within it. In order to utilize the system fully, spikes must be retrieved or replaced if they remain in the tire. The barrier strip must be directly in the path of the fleeing vehicle. There is no stand-off or range capability for the barrier strip. Would have to re-position the barrier strip for each additional vehicle that needs to be stopped. Recalling the above mentioned article, there arises a question about safety when a car with three flat tires is involved in a high speed chase.

**13. Requirements Documentation:**

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** International Logistics Systems, Inc.  
234 McLean Blvd (Route 20)  
Paterson, N.J. 07504-1295  
(201) 881-0001  
(201) 357-0077 fax

**16. Cost:**

Road Fangs Portable Road Block	\$1,295.00	(Code 13820)
50 extra spikes	\$250.00	

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** ROAD STARS (FOUR POINTED STAR)

**3. Photograph/Description:** Device is a four pointed star constructed from steel. Punctures vehicle tires when tire passes over the star.

**4. History/Background:**

**5. Potential Targets/Applications:** Stop moving vehicles or prevent vehicles from moving, road blocks, deny road access

**6. Primary Users:** Law Enforcement

**7. Incapacitation Mechanism/Technology**

**(technology, science, chemistry, physics involved):**

Steel stars puncture vehicle tires and cause tires to deflate.

**8. Physical Data**

a. **Size:** Approximately 4 inches tall

b. **Weight:** Approximately 1 lb. each

c. **Power Requirements:** None

**9. Performance Characteristics**

a. **Effect on Target:** Deflates tires of vehicle, severely limits the vehicle's mobility

b. **Time to Effect:** One to two minutes

c. **Duration of Effect:** Permanent

d. **Range:** Tire must come in contact with the device

**10. Delivery Means:** Hand emplaced or thrown

**11. Operational Strengths:** Simple, durable device

**12. Operational Limitations**

a. **Countermeasures:** Drive around the stars. Run-flat tires, possibly specialized puncture resistant or extreme off-road (i.e. very deep tread) tires.

b. **Weather, Environment Limitations:** None

c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** Humans or animals could step on the devices and result in mild to severe injury.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Supplier:  
Phoenix Systems Inc.  
P.O. Box 3339  
Evergreen, CO 80439  
(303) 277-0305  
(303) 278-8101 fax

**16. Cost:**

Road Stars (pack of 10)	\$19.95	(Code 903)
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**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available or Very Near Term

**2. Weapon Name:** RETRACTABLE SPIKED BARRIER STRIP

**3. Photograph/Description:**

Retractable Spiked Barrier Strip (very near term) - An unobtrusive strip that is laid across a road for the purpose of puncturing the tires of a fleeing vehicle and providing a controlled deceleration of the vehicle. The tires are punctured by spikes which break off once they have entered the tire. The spikes can be put in the active or passive mode (i.e spikes deployed or retracted, respectively). This allows other vehicles to pass over the barrier strip without damage. The spikes are deployed once the fleeing vehicle is on approach to the barrier strip. The spikes are deployed via a pulley and cam system. Passenger vehicle tires typically deflate in less than one minute. Multiple barrier segments can be joined together to form a custom barrier length. The system is man-portable and capable of being setup by one person.

**4. History/Background:**

**5. Potential Targets/Applications:** Motor vehicles, cars, trucks, buses, and possibly motorcycles.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Steel spikes puncture vehicle tires and cause tires to deflate.

**8. Physical Data**

a. Size:

b. Weight:

c. Power Requirements: None, man deployed

**9. Performance Characteristics**

a. Effect on Target: Deflates tires of vehicle, severely limits the vehicle's mobility

b. Time to Effect: Less than one minute

c. Duration of Effect: Permanent

d. Range: Must be directly in the path of the fleeing vehicle

**10. Delivery Means:** Person rolls the barrier strip across the road and awaits the approach of the fleeing vehicle.

**11. Operational Strengths:** Simple and safe means of stopping a vehicle. As long as the vehicle runs over the barrier, the tires will be punctured and subsequently deflated. The system is man-portable, and operable by a one person.

**12. Operational Limitations**

**a. Countermeasures:** Drive around the barrier strip. Run-flat tires, possibly specialized puncture resistant or extreme off-road (i.e. very deep tread) tires. In an article in the Columbus Dispatch newspaper from Columbus, Ohio on 7/8/95, two teenagers led police on a 60 mile high speed chase even after the car had run over three spike strips. In total, four strips were deployed. The driver missed one strip and ran over three strips which resulted in three flat tires. Even with the three flat tires, the car reached speeds up to 80 mph.

**b. Weather, Environment Limitations:** None noted by the authors. The retractable barrier system is operated by a simple mechanical system. There may be a slight chance for temperature or weather to influence its operation.

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** The barrier strip must be directly in the path of the fleeing vehicle. There is no stand-off or range capability for the barrier strip. Would have to re-position the barrier strip for each additional vehicle that needs to be stopped. Recalling the above mentioned article, there arises a question about safety when a car with three flat tires is involved in a high speed chase.

**13. Requirements Documentation: None**

**14. System Developer:**

Retractable Spiked Barrier Strip - Idaho National Engineering Laboratory

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Retractable Spiked Barrier Strip - Idaho National Engineering Laboratory

**16. Cost**

**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available or Very Near Term

**2. Weapon Name:** STINGER SPIKE SYSTEM

**3. Photograph/Description:**

Stinger Spike System (currently available) - The Stinger Spike System utilizes a rocker arm to position the spikes correctly when the vehicle approaches from either side. The spikes cause uniform tire deflation, which stops vehicles without loss of control.

**4. History/Background:**

**5. Potential Targets/Applications:** Motor vehicles, cars, trucks, buses, and possibly motorcycles.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Steel spikes puncture vehicle tires and cause tires to deflate.

**8. Physical Data**

a. **Size:** 15 1/2 foot and 25 foot lengths

b. **Weight:** 12 lbs. (for 15 1/2 feet) and 18 lbs. (for 25 feet)

c. **Power Requirements:** None, man deployed

**9. Performance Characteristics**

a. **Effect on Target:** Deflates tires of vehicle, severely limits the vehicle's mobility

b. **Time to Effect:** Less than one minute

c. **Duration of Effect:** Permanent

d. **Range:** Must be directly in the path of the fleeing vehicle

**10. Delivery Means:** Person rolls the barrier strip across the road and awaits the approach of the fleeing vehicle.

**11. Operational Strengths:** Simple and safe means of stopping a vehicle. As long as the vehicle runs over the barrier, the tires will be punctured and subsequently deflated. The system is man-portable, and operable by a one person.

**12. Operational Limitations**

a. **Countermeasures:** Drive around the barrier strip. Run-flat tires, possibly specialized puncture resistant or extreme off-road (i.e. very deep tread) tires. In an article in the Columbus Dispatch newspaper from Columbus, Ohio on 7/8/95, two teenagers led police on a 60 mile high speed chase even after the car had run over three spike strips. In total, four strips were deployed. The driver missed one strip and ran over three strips which resulted in three flat tires. Even with the

three flat tires, the car reached speeds up to 80 mph.

**b. Weather, Environment Limitations:**None

**c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:**

The barrier strip must be directly in the path of the fleeing vehicle. There is no stand-off or range capability for the barrier strip. Would have to re-position the barrier strip for each additional vehicle that needs to be stopped. Recalling the above mentioned article, there arises a question about safety when a car with three flat tires is involved in a high speed chase.

**13. Requirements Documentation:** None

**14. System Developer:**

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:**

Stinger Spike Systems, Inc.  
P.O. Box 848  
164 West, First South  
Monticello, UT 84535  
(801) 587-2803  
(801) 587-2740 fax

**16. Cost**



**Latest Revision Date:** October 14, 1995

**1. Status:** Currently Available or Very Near Term

**2. Weapon Name:** DORMAT QUICK STOP

**3. Photograph/Description:**

Dormet Quick Stop (currently available) - The Dormet Quick Stop is deployed by laying the spiked belt across the roadway or by using a pulley arrangement to pull the belt into place. The nylon belt consists of a single row of hollow spikes protruding vertically out of the belt. The hollow spikes are replaceable, thus allowing the belts to be reused by replacing the missing spikes. The kit comes in a steel carrying case which contains two spiked belts, each containing a single row of hollow steel spikes.

**4. History/Background:**

**5. Potential Targets/Applications:** Motor vehicles, cars, trucks, buses, and possibly motorcycles.

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**

(technology, science, chemistry, physics involved):

Steel spikes puncture vehicle tires and cause tires to deflate.

**8. Physical Data**

a. **Size:** Kit consists of a 27 x 15 x 7.5 inch steel carrying case which contains two spiked belts. Each spiked belt consists of a 15 foot long belt with a single row of hollow steel spikes. The kit also contains 5 spare hollow steel spikes. Optional equipment: a pulley with 60 feet of rope, and spike belt of custom length.

b. **Weight:** 53.2 lbs

c. **Power Requirements:** None, man deployed

**9. Performance Characteristics**

a. **Effect on Target:** Deflates tires of vehicle, severely limits the vehicle's mobility

b. **Time to Effect:** Less than one minute

c. **Duration of Effect:** Permanent

d. **Range:** Must be directly in the path of the fleeing vehicle

**10. Delivery Means:** Person rolls the barrier strip across the road and awaits the approach of the fleeing vehicle.

**11. Operational Strengths:** Simple and safe means of stopping a vehicle. As long as the vehicle runs over the barrier, the tires will be punctured and subsequently deflated. The system is man-portable, and operable by a one person.

**12. Operational Limitations**

- a. **Countermeasures:** Drive around the barrier strip. Run-flat tires, possibly specialized puncture resistant or extreme off-road (i.e. very deep tread) tires. In an article in the Columbus Dispatch newspaper from Columbus, Ohio on 7/8/95, two teenagers led police on a 60 mile high speed chase even after the car had run over three spike strips. In total, four strips were deployed. The driver missed one strip and ran over three strips which resulted in three flat tires. Even with the three flat tires, the car reached speeds up to 80 mph.
- b. **Weather, Environment Limitations:** None
- c. **Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects:** The barrier strip must be directly in the path of the fleeing vehicle. There is no stand-off or range capability for the barrier strip. Would have to re-position the barrier strip for each additional vehicle that needs to be stopped. Recalling the above mentioned article, there arises a question about safety when a car with three flat tires is involved in a high speed chase.

13. **Requirements Documentation:** None

14. **System Developer:**

15. **Manufacturer/Contractor**

- a. **Government:**

- b. **Manufacturer:**

Traffic Technology 2000  
701 Meloche Avenue  
Dorval, QC H9P 2S4, Canada  
(514) 631-1917  
(800) 363-6224

16. **Cost**

Kit (carrying case, two spiked belts, 5 spare hollow steel spikes)	\$1187.00
Optional equipment: Pulley with 60 feet of rope	\$59.00
Spike belt of custom length	\$37.00 per foot

**Latest Revision Date:**October 14, 1995

**1. Status:** Currently Available

**2. Weapon Name:** M300 SERIES PORTABLE LANE BARRICADES

**3. Photograph/Description:** These lane barricades are designed to stop road vehicles and also be easily deployed. The M301 has 3 inch pointed steel teeth which can easily penetrate most automobile tires. The teeth are welded to the base strip and do not remain in the tires. The M302 was designed to defeat self-sealing tires. The teeth are thick-walled, hollow steel tubes which have sharp edges along with two cutting edges on each end of the tube. This results in the most damage to the tires.

**4. History/Background:**

**5. Potential Targets/Applications:** Stopping automobiles or blocking a road

**6. Primary Users:** Law enforcement

**7. Incapacitation Mechanism/Technology**  
(technology, science, chemistry, physics involved):  
Sharp teeth puncture the tire(s).

**8. Physical Data**

- a. Size: M301: 28 inches wide and 20 feet long  
M302: 20 feet long
- b. Weight: M301: 75 pounds  
M302: 15 pounds
- c. Power Requirements: None

**9. Performance Characteristics**

- a. Effect on Target: Punctures automobile tires.
- b. Time to Effect: Less than a minute
- c. Duration of Effect: Permanent
- d. Range: Vehicle must run over the barricade.

**10. Delivery Means:** Hand emplaced

**11. Operational Strengths:** Lightweight and portable

**12. Operational Limitations**

- a. Countermeasures: Drive around the barricade.
- b. Weather, Environment Limitations: None
- c. Legal, fratricide, multi-shot/recycle time, number of shots, short/long term human effects: Reusable

**13. Requirements Documentation: None**

**14. System Developer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**15. Manufacturer/Contractor**

**a. Government:**

**b. Manufacturer:** Accuracy Systems Ordnance Company  
P.O. Box 41454  
Phoenix, AZ 85080  
(800)-starflash  
FAX: (602) 433-9375

**16. Cost:** M301: \$560.00  
M302: \$565.00

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