MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **Max Smoke Grenade, Military Style**

PRODUCT NUMBER: **1083** **DATE:** **April 14, 2011**

TRADE NAME: Max Smoke Grenade, Military Style

GENERAL USE: Crowd Control

CHEMICAL FAMILY: Fuze/Charge/HC Agent

PRODUCT DESCRIPTION:

Canister containing fuze/fine powder/HC Agent. (Explosive Device)

DEFENSE TECHNOLOGY®

MANUFACTURED FOR:

Safariland, LLC

DATE PREPARED: **April 14, 2011**

SUPERSEDES: **January 17, 2011**

ADDRESS (NUMBER, STREET, P.O. BOX)

13386 International Parkway

TELEPHONE NUMBER FOR INFORMATION / Customer Care

800-347-1200

(CITY, STATE AND ZIP CODE) COUNTRY

Jacksonville, FL 32218 **USA**

CHEMTEL 24-HOUR EMERGENCY TELEPHONE NUMBER

ChemTel INC.

1-800-255-3924 North America Toll Free

01-813-248-0585 International

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING! THIS DEVICE CONTAINS AN EXPLOSIVE CHARGE AND PRODUCES IRRITATING SMOKE. KEEP AWAY FROM FIRE AND HEAT SOURCES. DO NOT SUBJECT TO MECHANICAL OR ELECTRICAL SHOCK. THIS PRODUCT SHOULD ONLY BE DEPLOYED BY PERSONNEL TRAINED IN ITS PROPER USE. Individual cartridges may ignite if the unit is exposed to extreme heat. Oxides of Nitrogen, Carbon, and Sulfur may be formed, as well as halogenated compounds. Chemicals in unused product pose no exposure hazards; small amounts of metal oxides and metal fumes are generated during deployment; the hazards from single exposures are generally slight.

INHALATION:

Normal handling of the unused product poses no exposure hazards. While particles from deployed product may be an inhalation hazard, the risk is slight where single exposures are concerned. When the product is used, particles and vapors may be generated which may cause temporary slight irritation to the respiratory tract.

SKIN:

Possible temporary skin irritation may occur if internal contents of device come in contact with the skin or if vapors from detonated device contact skin. Prolonged contact is more likely to lead to irritation; in rare cases, blistering may occur.

EYES:

Irritation may occur if contents of unused device come in contact with eyes. Some temporary irritation may occur if particles generated during deployment lodge in the eye. In rare cases, corneal ulcerations may occur.

INGESTION:

Ingestion of deployed product is highly unlikely. Components of unused product are toxic and will cause irritation to throat and gastro-intestinal tract.

CARCINOGENICITY:

Product contains hexavalent chromium and lead salts, which are considered carcinogenic by the IARC, the NTP, OSHA, the ECHA (ESIS Notation), and the State of California (Proposition 65). Product also contains carbon black, which is listed by the IARC and the State of California. These components pose no exposure risk in handling the unused product, and pose only a very slight risk in normal single deployments. Hexachloroethane is considered to be possibly carcinogenic to humans by the NTP and the IARC (Group 2B), and is listed under California Proposition 65.

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PRODUCT NAME: **Max Smoke Grenade, Military Style**

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SECTION 3 - HAZARDOUS INGREDIENTS

Hazardous Components	% (by Weight)	CAS #	EINECS #	Hazard Symbol	RISK PHRASES (Full Text Section 15)
Barium Chromate	**NR**	**10294-40-3**	**233-660-5**	**T**	**None**
Manganese Powder	**NR**	**7439-96-5**	**231-105-1**	**None**	**None**
Lead Chromate	**NR**	**7758-97-6**	**231-846-0**	**T,N**	**R33,R40,R50/53,R62**
Nitrocellulose	**NR**	**9004-70-0**	**NR**	**E**	**NR**
Red Iron Oxide	**NR**	**1309-37-1**	**215-168-2**	**None**	**None**
Titanium Powder	**NR**	**7440-32-6**	**231-142-3**	**None**	**None**
Zirconium Powder	**NR**	**7440-67-7**	**231-176-9**	**F**	**R15, R17**
Zinc Oxide	**NR**	**1314-13-2**	**215-222-5**	**N**	**R50/53**
Hexachloroethane	**NR**	**67-72-1**	**200-666-4**	**Xn**	**R36/37/38, R40**
Aluminum Powder	**NR**	**7429-90-5**	**231-072-3**	**F**	**R15, R17**

NOTES: This Material Safety Data Sheet is prepared to comply with the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200), the Canadian Workplace Hazardous Materials Information System (WHMIS), and European Union Directive 1907/2006 (REACH). Hazard symbols and risk phrases are based on maximum listed concentration of each hazardous ingredient. Unlisted ingredients are not "hazardous" per the OSHA Hazard Communication Standard (29 CFR 1910.1200), the Canadian Workplace Hazardous Materials Information System (WHMIS) or the European (GHS) directive 1907/2006 and are considered trade secrets under US Federal Law (29CFR and 40CFR), Canadian Law (Health Canada Legislation), and European Union Directive 67/548/EEC.

SECTION 4 - FIRST AID MEASURES

INHALATION:

For symptoms of lung irritation occur (coughing, wheezing or breathing difficulty), remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention.

EYES:

Remove contact lenses, then wash for 15 minutes with clean potable water lifting upper and lower lids occasionally. Seek medical attention if irritation persists.

SKIN:

Wash with plenty of soap and water. Seek medical attention if delayed dermatitis develops. For contact with burning (ignited) particles, medical treatment may be needed for thermal burns.

INGESTION:

Contact medical authorities immediately. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs naturally, have victim lean forward to avoid aspiration of regurgitant. Give 1-2 glasses of water to victim if victim is conscious and able to swallow and seek immediate medical assistance. Never give anything by mouth to an unconscious person.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: **Max Smoke Grenade, Military Style**

PRODUCT NUMBER: **1083** **DATE:** **April 14, 2011**

SECTION 5 - FIRE FIGHTING MEASURES

GENERAL HAZARDS:

Flammability Classification: (defined by 29 CFR 1910.1200) Explosive. Can explode under fire conditions. Individual devices will randomly explode. Will not mass explode if multiple devices are involved. Burning material may produce toxic, corrosive, and irritating vapors. See 2008 Emergency response Guidebook for further information.

EXTINGUISHING MEDIA:

Flood area with water. If no water is available, carbon dioxide, dry chemical or earth may be used. If the fire reaches the cargo, withdraw and let fire burn.

FIRE FIGHTING PROCEDURES:

In case of fire, use normal fire fighting equipment. Protection concerns must also address the potential of the physical characteristic of this product as explosive. Quarantine area for at least 1500 feet from fires involving product.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

If fire reaches cargo, do not fight; withdraw personnel to safe distance. Evacuate all persons, including emergency responders from the area for 1500 feet (1/3 mile) in all directions.

HAZARDOUS COMBUSTION PRODUCTS:

Metal Compounds, Carbon Monoxide, Carbon Dioxide, Nitrous Oxides, Various complex oxides of metals, Nitrogen.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTEL AT 1-800-255-3924. Spills of this material should be handled carefully. Do not subject materials to mechanical shock or extreme heat. A spill of this material will normally not require emergency response team capabilities.

SECTION 7 - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: Canister may detonate or burn if case is punctured or severely damaged.
STORAGE: Avoid storage near extreme heat, ignition sources or open flame.
CONDITIONS TO AVOID: Mechanical impact or shock, electrical discharge, high energy EM fields (radar stations).

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Hazardous Components	CAS #	ACGIH Exposure Limits	OSHA Exposure Limits
Barium Chromate	**10294-40-3**	0.5 mg/m3	0.5 mg/m3
Manganese Powder	**7439-96-5**	0.2 mg/m3	5 mg/m3 (Ceiling)
Lead Chromate (a)(b)	**7758-97-6**	0.012 mg/m3 as Chromium / 0.05 mg/m3 as Lead	0.1 mg/m3 (Ceiling as CrO3)
Nitrocellulose	**9004-70-0**	NE	NE
Red Iron Oxide	**1309-37-1**	5 mg/m3 respirable	10 mg/m3
Titanium Powder	**7440-32-6**	NE	NE
Zirconium Powder	**7440-67-7**	5 mg/m3 (NIOSH)	5 mg/m3
Zinc Oxide	**1314-13-2**	2 mg/m3 respirable	5 ppm
Hexachloroethane	**67-72-1**	1 ppm	1 ppm
Aluminum Powder	**7429-90-5**	10 mg/m3	15 mg/m3 (total), 5 mg/m3 (respirable)

(a) - OSHA 30 aeg/M3 Action Level as Lead. Poison-see (29CFR 1910.10-25) (listed under Lead, inorganic compounds).
(b) - NIOSH Recommended Exposure Limit (REL): As Pb: < 0.1 mg/m3 (TWA); As Cr: 0.001 mg/m3 (TWA).

MATERIAL SAFETY DATA SHEET

PRODUCT NAME:	**Max Smoke Grenade, Military Style**		
PRODUCT NUMBER:	**1083**	**DATE:**	**April 14, 2011**

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION Continued

PERSONAL PROTECTION

RESPIRATORY PROTECTION:

A vapor respirator may be advisable or required under certain deployment conditions; consult manufacturer for further guidance.

PROTECTIVE GLOVES:

None required for handling unused product; where possible, use protective gloves for handling spent grenades.

EYE PROTECTION:

Safety glasses with side shields or face shield strongly suggested.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

Local exhaust ventilation is recommended if product is discharged indoors. Hearing protection is recommended with all products containing an explosive charge.

WORK / HYGIENIC PRACTICES:

Avoid breathing fumes from ignition. DO NOT EAT/DRINK/SMOKE WHILE HANDLING PRODUCT!!!

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR Canister containing fuze/fine powder/ HC Agent.	VAPOR PRESSURE Not applicable.
pH Not applicable.	SPECIFIC GRAVITY (WATER = 1) Not applicable
MELTING POINT Not applicable.	SOLUBILITY IN WATER Insoluble - some components are soluble in water
FLASH POINT Not applicable.	VISCOSITY Not applicable
FLAMMABLE LIMITS **EXPLOSIVE!!** LEL: None UEL: None	VAPOR DENSITY (AIR = 1) Not applicable.
AUTOIGNITION TEMPERATURE NR	EVAPORATION RATE (WATER = 1) Not applicable.

VOLATILE ORGANIC COMPOUND (VOC) INFORMATION

Not applicable.

NOTES:

SECTION 10 - STABILITY AND REACTIVITY

STABILITY: Stable under normal temperatures and pressure.	CONDITIONS TO AVOID: Cartridge may detonate if case is punctured or severely damaged.

INCOMPATIBILITY (MATERIALS TO AVOID):

Acids, Class A & B explosives, strong oxidizers, and caustics.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS:

Nitrogen oxides, carbon monoxide, lead oxides, carbon dioxide, lead dust/fume.

HAZARDOUS POLYMERIZATION: Will not occur.	CONDITIONS TO AVOID: None related to polymerization.

SECTION 11 - TOXICOLOGICAL INFORMATION

Complete Product

Oral LD_{50}	Product contents are toxic; ingestion of used product is highly unlikely.
Dermal LD_{50}	Product contents are irritating to skin; prolonged contact may result in some blistering.
Inhalation LC_{50}	Vapors from deployed product may be irritating.
Irritation	Vapors from used product may be irritating to skin, eyes, and respiratory system.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: **Max Smoke Grenade, Military Style**

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SECTION 11 - TOXICOLOGICAL INFORMATION Continued

Product Components

Hazardous Components	CAS #	LD50 of Ingredient (Oral, Rat - unless otherwise specified)	LC50 of Ingredient (Inhalation, Rat - unless otherwise specified)
Barium Chromate	**10294-40-3**	**Not Established**	**Not Established**
Manganese Powder	**7439-96-5**	**9 gm/kg**	**Not Established**
Lead Chromate	**7758-97-6**	**> 12 g/kg (oral, mouse)**	**Not Established**
Nitrocellulose	**9004-70-0**	**> 5 g/kg**	**Not Established**
Red Iron Oxide	**1309-37-1**	**Not Established**	**Not Established**
Potassium Nitrate	**7757-79-1**	**3450 mg/kg**	**Not Established**
Titanium Powder	**7440-32-6**	**Not Established**	**Not Established**
Zirconium Powder	**7440-67-7**	**Not Established**	**Not Established**
Zinc Oxide	**1314-13-2**	**7950 mg/kg (oral, mouse)**	**2500 mg/m3 (inhalation, mouse)**
Hexachloroethane	**67-72-1**	**4460 mg/kg**	**Not Established**
Aluminum Powder	**7429-90-5**	**Not Established**	**Not Established**

SECTION 12 - ECOLOGICAL INFORMATION

No data is available on this product, but leachates of metal components may be harmful or toxic to aquatic life and waterfowl. Collection and careful disposal of spent cartridges is highly advisable. Lead and chromium are especially problematic when introduced into many ecosystems.

SECTION 13 - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:

The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous. Damaged materials pose a danger to anyone in the immediate area; consult experts for disposal of damaged products.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME: **Ammunition, smoke, with or without burster, expelling charge, or propelling charge, UN 0303**

DOT HAZARD CLASS / Pack Group: **Explosives,1.4G**

REFERENCE: 49CFR

UN / NA IDENTIFICATION NUMBER: **UN 0303**

LABEL: **Explosives 1.4G, CAO**

HAZARD SYMBOLS:

IATA HAZARD CLASS / Pack Group: **1.4G / II 75kg max, Cargo Aricraft Only**

IMDG HAZARD CLASS: **Explosives 1.4G**

RID/ADR Dangerous Goods Code: **Explosives 1.4G**

UN TDG Class / Pack Group: **1.4G/ II**

Hazard Identification Number (HIN): **NA**

Note: Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100 - 177, IMDG, IATA, EU, United Nations TDG, and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

MATERIAL SAFETY DATA SHEET

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SECTION 15 - REGULATORY INFORMATION

TSCA (USA - Toxic Substance Control Act): **Components are listed under Section8b.**

SARA TITLE III (USA - Superfund Amendments and Reauthorization Act):

Acute Health:	**YES**	Chronic Health:	**YES**
Fire:	**YES**	Sudden Release of Pressure:	**YES**
Reactive:	**NO**		

SARA 313 REPORTABLE INGREDIENTS: **Copper, Zinc (fume or dust), Lead, Chromium**

CERCLA (USA - Comprehensive Response Compensation and Liability Act): **Aluminum, Aluminum Oxide, Manganese R.Q. = 10000 lbs. : Chromium, R.Q. = 5000 lbs. : Lead R.Q. = 100 lbs. (No reporting is required if diameter of the pieces of metal is equal to or exceeds 100 micrometers (0.004 inches). Nitrates, Barium, Lead, and Chromium compounds are CERCLA reportable, although no RQ has been assigned.**

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986: **WARNING: This product contains Hexachloroethane, Lead chromate and Barium chromate (listed as `Chromium (VI) compounds'), chemicals known to the state of California to cause cancer. WARNING: This product contains Lead chromate, listed as `Lead, inorganic compounds', a chemical known to the State of California to cause developmental reproductive toxicity and cancer.**

State Right To Know Laws: **This product contains chemicals listed on the Right-to-Know Laws of CA, FL, MA, MI, MN, NJ, PA, & RI.**

CPR (Canadian Controlled Products Regulations): **Exempt under WHMIS regulations as explosive.**

IDL (Canadian Ingredient Disclosure List): **Components are listed in Section 2.**

DSL / NDSL (Canadian Domestic Substances List / Non-Domestic Substances List): **Listed or exempt on both CDSL and NDSL.**

EINECS (European Inventory of Existing Commercial Chemical Substances): **Referenced**

WGK Water Quality Index: **NA for product.**

EUROPEAN (GHS) HAZARD SYMBOLS

EU RISK PHRASES

R2: Risk of explosion by shock, friction, fire or other sources of ignition.
R20/22: Harmful by inhalation and if swallowed.
R33: Danger of cumulative effects.
R36/37/38: Irritating to eyes, respiratory system and skin.
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R61: May cause harm to the unborn child.
R62: Possible risk of impaired fertility.

EU SAFETY PHRASES

S1/2: Keep locked up and out of the reach of children.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53: Avoid exposure — obtain special instructions before use.
S60: This material and its container must be disposed of as hazardous waste.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME:	**Max Smoke Grenade, Military Style**		
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SECTION 16 - OTHER INFORMATION

HMIS HAZARD RATINGS

HEALTH:	2	**0 = INSIGNIFICANT**
FLAMMABILITY:	3	**1 = SLIGHT**
PHYSICAL HAZARD:	2	**2 = MODERATE**
		3 = HIGH
Personal Protective Equipment: B		**4 = EXTREME**

Legend:

ACGIH - American Congress of Government Industrial Hygienists , CAS - Chemical Abstracts Service
EINECS - European Inventory of Existing Commercial Chemical Substances
HMIS - Hazardous Materials Identification System, IARC - International Agency for Research on Cancer
NA - Not Available , ND - Not Determined, NE - Not Established, NR - Not Reported
NIOSH - National Institute for Occupational Safety and Health, NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration

Full R-Phrases: R1 Explosive when dry. R2 Risk of explosion by shock, friction, fire or other sources of ignition. R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition. R5 Heating may cause an explosion. R8 Contact with combustible material may cause fire. R9 Explosive when mixed with combustible material. R11 Highly flammable. R15 Contact with water liberates extremely flammable gases. R17 Spontaneously flammable in air. R20 Harmful by inhalation. R20/22 Harmful by inhalation and if swallowed. R22 Harmful if swallowed. R23/24/25 Toxic by inhalation, in contact with skin and if swallowed. R23/25 Toxic by inhalation and if swallowed. R33 Danger of cumulative effects. R36 Irritating to eyes. R36/37/38 Irritating to eyes, respiratory system and skin.

R40 Limited evidence of a carcinogenic effect. R43 May cause sensitization by skin contact. R45 May cause cancer. R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed. R50 Very toxic to aquatic organisms. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53 Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment. R61 May cause harm to the unborn child. R62 Possible risk of impaired fertility. R66 Repeated exposure may cause skin dryness or cracking. R67 Vapors may cause drowsiness and dizziness. R68 Possible risk of irreversible effects.

REVISION SUMMARY: Revised 1/17/2011.

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