



MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Smoke Grenade, Saf-Smoke™		DATE: January 17, 2011	
PRODUCT NUMBER: 1063			
TRADE NAME: Smoke Grenade, Saf-Smoke™ GENERAL USE: Crowd Control CHEMICAL FAMILY: Fuze/Charge/Smoke Agent PRODUCT DESCRIPTION: Canister containing fuze & grey colored powder. (Explosive Device)	 DEFENSE TECHNOLOGY®		
MANUFACTURED FOR: Safariland, LLC		DATE PREPARED: January 17, 2011	
		SUPERSEDES: March 23, 2010	
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  1-800-255-3924 01-813-248-0585 North America Toll Free International	

SECTION 2 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING! THIS DEVICE CONTAINS AN EXPLOSIVE CHARGE. 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. 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.

POTENTIAL HEALTH EFFECTS

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.

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.

INGESTION:

Ingestion of deployed product is highly unlikely. Components of unused product are toxic and will cause irritation to throat and gastrointestinal 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.

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Smoke Grenade, Saf-Smoke™
PRODUCT NUMBER: 1063 **DATE:** January 17, 2011

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
Potassium Chlorate	NR	3811-04-9	231-104-6	F, Xn, N	R9, R20/22, R51/53
Sugar	NR	57-50-1	200-334-9	None	None
Magnesium Carbonate	NR	546-93-0	208-915-9	None	None
Terephthalic Acid	NR	100-21-0	202-830-0	None	None

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: Smoke Grenade, Saf-Smoke™
PRODUCT NUMBER: 1063 **DATE:** January 17, 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 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
Potassium chlorate	3811-04-9	NE	NE
Sugar	57-50-1	5 mg/m3 (respirable)(NIOSH)	15 mg/m3 total, 5 mg/m3 respirable
Magnesium Carbonate	546-93-0	10 mg/m3	15 mg/m3
Terephthalic Acid	100-21-0	NE	NE

(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: Smoke Grenade, Saf-Smoke™		DATE: January 17, 2011
PRODUCT NUMBER: 1063		
SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION Continued		
PERSONAL PROTECTION		
RESPIRATORY PROTECTION: A 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		
DESCRIPTION: Canister containing fuze & grey colored powder.	CONDITIONS TO AVOID: 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 LEL: None UEL: None	EXPLOSIVE!! 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 LD₅₀	Product contents are toxic; ingestion of used product is highly unlikely.	
Dermal LD₅₀	Product contents are possibly irritating to skin.	
Inhalation LC₅₀	Unused product is harmless. Vapors from deployed product may be slightly irritating.	
Irritation	Not a skin or eye irritant in unused form. Vapors from used product is possibly irritating to eyes, skin, and respiratory system.	

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: **Smoke Grenade, Saf-Smoke™**
 PRODUCT NUMBER: **1063** DATE: **January 17, 2011**

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
Titanium Powder	7440-32-6	Not Established	Not Established
Zirconium Powder	7440-67-7	Not Established	Not Established
Potassium chlorate	3811-04-9	1870 mg/kg	Not Established
Sugar	57-50-1	29,700 mg/kg	110 mg/m3
Magnesium Carbonate	546-93-0	8000 mg/kg	Not Established
Terephthalic Acid	100-21-0	6400 mg/kg	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, Explosive Class 1.4G, UN 0303**

DOT HAZARD CLASS / Pack Group: Explosives, 1.4G, / II REFERENCE: 49CFR UN / NA IDENTIFICATION NUMBER: UN0303 LABEL: Explosives 1.4G HAZARD SYMBOLS:	IATA HAZARD CLASS / Pack Group: 1.4G, / II, 75Kg Cargo Aircraft Only IMDG HAZARD CLASS: Explosives 1.4G, / II 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

PRODUCT NAME:	Smoke Grenade, Saf-Smoke™	DATE:	January 17, 2011
PRODUCT NUMBER:	1063		

SECTION 15 - REGULATORY INFORMATION

TSCA (USA - Toxic Substance Control Act): **Components are listed under Section 8b.**

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 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:	Smoke Grenade, Saf-Smoke™	DATE:	January 17, 2011
PRODUCT NUMBER:	1063		

SECTION 16 - OTHER INFORMATION

HMIS HAZARD RATINGS			
	HEALTH:	2	0 = INSIGNIFICANT 1 = SLIGHT 2 = MODERATE 3 = HIGH 4 = EXTREME
	FLAMMABILITY:	4	
	PHYSICAL HAZARD:	2	
	Personal Protective Equipment: K		

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.

MSDS Prepared by:
 ChemTel Inc.
 1305 North Florida Avenue
 Tampa, Florida USA 33602-2902
 Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
 Website: www.chemtelinc.com



The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.