

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

Winchester Australia Ltd

Chemwatch Hazard Alert Code: 4

Chemwatch: 5257-76

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Safety Data Sheet according to WHS and ADG requirements

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SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles
Synonyms	Not Available
Proper shipping name	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Explosive product which on initiation produces smoke.
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Details of the supplier of the safety data sheet

Registered company name	Winchester Australia Ltd
Address	65 Hays Road Moolap, Geelong VIC 3224 Australia
Telephone	+61 3 5245 2400
Fax	+61 3 5248 2409
Website	Not Available
Email	aedmondson@olin.com.au

Emergency telephone number

Association / Organisation	Winchester Australia Ltd
Emergency telephone numbers	0418 158 337 All hours
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	1	1	0 = Minimum
Toxicity	4	4	1 = Low
Body Contact	2	2	2 = Moderate
Reactivity	4	4	3 = High
Chronic	2	2	4 = Extreme

Poisons Schedule	Not Applicable
Classification ^[1]	Explosive Division 1.4, Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 2, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Skin Sensitizer Category 1, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Chronic Aquatic Hazard Category 2
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	
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SIGNAL WORD	DANGER
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Hazard statement(s)

H204	Fire or projection hazard.
H302	Harmful if swallowed.

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

H330	Fatal if inhaled.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P250	Do not subject to grinding/shock/sources of friction.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P240	Ground/bond container and receiving equipment.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P284	Wear respiratory protection.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310	Immediately call a POISON CENTER or doctor/physician.
P362	Take off contaminated clothing and wash before reuse.
P370+P380	In case of fire: Evacuate area.
P372	Explosion risk in case of fire.
P374	Fight fire with normal precautions from a reasonable distance.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P373	DO NOT fight fire when fire reaches explosives.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P391	Collect spillage.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330	Rinse mouth.

Precautionary statement(s) Storage

P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P401	Store according to local regulations for explosives.

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
3811-04-9	25-50	<u>potassium chlorate</u>
57-50-1	10-25	<u>sucrose</u>
532-27-4	10-25	<u>2-chloroacetophenone</u>
7760-50-1	10-25	<u>magnesium carbonate hydroxide</u>
7757-79-1	<10	<u>potassium nitrate</u>
7440-21-3	<10	<u>silicon</u>
9004-70-0	<10	<u>nitrocellulose</u>
63918-97-8	<1	<u>lead styphnate</u>

SECTION 4 FIRST AID MEASURES

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor.
Ingestion	<ul style="list-style-type: none"> ▶ Not considered a normal route of entry. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- ▶ **WARNING:** Deliver water spray or fog from a safe distance only.

Special hazards arising from the substrate or mixture

Fire Incompatibility	<ul style="list-style-type: none"> ▶ Avoid contact with other explosives, pyrotechnics, solvents, adhesives, paints, cleaners and unauthorized metals, plastics, packing equipment and materials. ▶ Avoid contamination with acids, alkalis, reducing agents, amines and phosphorus.
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Advice for firefighters

Fire Fighting	<p>WARNING: EXPLOSIVE MATERIALS / ARTICLES PRESENT!</p> <ul style="list-style-type: none"> ▶ Evacuate all personnel and move upwind. ▶ Prevent re-entry. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ May detonate and burning material may be propelled from fire. ▶ Wear full-body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage and fire effluent from entering drains and water courses. ▶ Fight fire from safe distances and from protected locations. ▶ Use flooding quantities of water. ▶ DO NOT approach containers or packages suspected to be hot. ▶ Cool any exposed containers not involved in fire from a protected location. ▶ Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	<p>Division 1.4 Substances, mixtures and articles which present no significant hazard: substances, mixtures and articles which present only a small hazard in the event of ignition or initiation. The effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire shall not cause virtually instantaneous explosion of almost the entire contents of the package.</p> <p>Decomposes on heating and produces toxic fumes of: carbon monoxide (CO) carbon dioxide (CO₂) nitrogen oxides (NO_x) metal oxides chlorides</p> <p> Individual cartridges may explode. Mass explosion of many cartridges at once is unlikely. In unusual cases, shrapnel may be thrown from exploding devices under containment</p>
HAZCHEM	1YE

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<p>WARNING!: EXPLOSIVE.</p> <p>BLAST and/or PROJECTION and/or FIRE HAZARD</p> <ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid inhalation of the material and avoid contact with eyes and skin.
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Continued...

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

	<ul style="list-style-type: none"> ▶ Wear impervious gloves and safety glasses. ▶ Remove all ignition sources. ▶ Use spark-free tools when handling. ▶ Sweep into non-sparking containers or barrels and moisten with water. ▶ Place spilled material in clean, sealable, labelled container for disposal. ▶ Flush area with large amounts of water.
Major Spills	<p>WARNING: EXPLOSIVE.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ May be violently or explosively reactive. ▶ Wear full body protective clothing with breathing apparatus. ▶ Consider evacuation (or protect in place). ▶ In case of transport accident notify Police, Emergency Authority, Competent Explosives Authority or Manufacturer. ▶ No smoking, naked lights, heat or ignition sources. ▶ Increase ventilation. ▶ Use extreme caution to prevent physical shock. ▶ Use only spark-free shovels and explosion-proof equipment. ▶ Collect recoverable material and segregate from spilled material. ▶ Wash spill area with large quantities of water.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Handle gently. Use good occupational work practice. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Avoid all personal contact, including inhalation. ▶ Avoid smoking, naked lights, heat or ignition sources. ▶ Explosives must not be struck with metal implements. ▶ Avoid mechanical and thermal shock and friction. ▶ Use in a well ventilated area. ▶ Avoid contact with incompatible materials. ▶ When handling DO NOT eat, drink or smoke. ▶ Avoid physical damage to containers. ▶ Always wash hands with soap and water after handling. ▶ Work clothes should be laundered separately. <p>Under normal handling, no exposure to harmful materials will occur.</p>
Other information	<ul style="list-style-type: none"> ▶ Store cases in a well ventilated magazine licensed for the appropriate Class, Division and Compatibility Group. ▶ Rotate stock to prevent ageing. Use on FIFO (first in-first out) basis. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. ▶ Store in a cool place in original containers. ▶ Keep containers securely sealed. ▶ No smoking, naked lights, heat or ignition sources. ▶ Store in an isolated area away from other materials. ▶ Keep storage area free of debris, waste and combustibles. ▶ Protect containers against physical damage. ▶ Check regularly for spills and leaks <p>NOTE: If explosives need to be destroyed contact the Competent Authority.</p>

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ All packaging for Class 1 Goods shall be in accordance with the requirements of the relevant Code for the transport of Dangerous Goods. ▶ Class 1 is unique in that the type of packaging used frequently has a very decisive effect on the hazard and therefore on the assignment to a particular division
Storage incompatibility	<ul style="list-style-type: none"> ▶ Reacts with acids producing flammable / explosive hydrogen (H2) gas ▶ Avoid reaction with oxidising agents ▶ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates. strong alkalis



X — Must not be stored together
 0 — May be stored together with specific preventions
 + — May be stored together

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	sucrose	Sucrose	10 mg/m3	Not Available	Not Available	(a) This value is for inhalable dust containing no asbestos and < 1% crystalline silica.
Australia Exposure Standards	2-chloroacetophenone	alpha-Chloroacetophenone	0.05 ppm / 0.32 mg/m3	Not Available	Not Available	Not Available

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

Australia Exposure Standards	silicon	Silicon	10 mg/m3	Not Available	Not Available	(a) This value is for inhalable dust containing no asbestos and < 1% crystalline silica.
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EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
potassium chlorate	Potassium chlorate	5.6 mg/m3	62 mg/m3	370 mg/m3
magnesium carbonate hydroxide	Magnesium carbonate hydroxide	30 mg/m3	330 mg/m3	2,000 mg/m3
potassium nitrate	Potassium nitrate	9 mg/m3	100 mg/m3	600 mg/m3
silicon	Silicon	45 mg/m3	100 mg/m3	630 mg/m3

Ingredient	Original IDLH	Revised IDLH
potassium chlorate	Not Available	Not Available
sucrose	Not Available	Not Available
2-chloroacetophenone	15 mg/m3	Not Available
magnesium carbonate hydroxide	Not Available	Not Available
potassium nitrate	Not Available	Not Available
silicon	Not Available	Not Available
nitrocellulose	Not Available	Not Available
lead styphnate	100 mg/m3	Not Available

MATERIAL DATA

Exposure controls

Appropriate engineering controls	Normally used outdoors.
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Chemical goggles. ▶ Full face shield may be required for supplementary but never for primary protection of eyes. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59]. [AS/NZS 1336 or national equivalent]
Skin protection	See Hand protection below
Hands/feet protection	Wear physical protective gloves, e.g. leather <ul style="list-style-type: none"> ▶ Heavy weight Rubber gloves ▶ Rubber boots <ul style="list-style-type: none"> Non-sparking or conductive footwear essential. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot an shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.
Body protection	See Other protection below
Other protection	For handling explosives or explosive compositions: <ul style="list-style-type: none"> ▶ Wear close-fitting flame-protection treated clothing closed at the neck and sleeves. ▶ Cotton underwear, socks and conductive shoes are recommended to avoid human static discharge.

Respiratory protection

Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AB-AUS P2	-	AB-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AB-AUS / Class 1 P2	-
up to 100 x ES	-	AB-2 P2	AB-PAPR-2 P2 ^

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Grey solid with characteristic odour.
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Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

Physical state	Manufactured	Relative density (Water = 1)	Not Applicable
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Applicable	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Applicable
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water	Not Applicable	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ Presence of shock and friction ▶ Presence of heat source and ignition source ▶ Product is considered stable under normal handling conditions. ▶ Stable under normal storage conditions. ▶ Hazardous polymerization will not occur. Avoid contact with other chemicals. May detonate if case is punctured or severely damaged.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Not normally a hazard due to physical form of product. Irritating to respiratory system.
Ingestion	Not normally a hazard due to physical form of product.
Skin Contact	Not normally a hazard due to physical form of product. Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.
Eye	Not normally a hazard due to physical form of product. Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
Chronic	Explosive components are completely sealed within the container. Under normal handling of this product, no exposure to harmful materials will occur. Product may produce physical injury if mishandled. Treatment of these injuries should be based on the blast and compression effects.

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles	TOXICITY	IRRITATION
	Not Available	Not Available
potassium chlorate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1] Oral (rat) LD50: 1870 mg/kg ^[2]	Not Available
sucrose	TOXICITY	IRRITATION
	Oral (rat) LD50: 29700 mg/kg ^[2]	Not Available

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

2-chloroacetophenone	TOXICITY	IRRITATION
	dermal (guinea pig) LD50: >1000 mg/kg ^[2]	Eye (rabbit): 1 mg - mild
	Oral (rat) LD50: 50 mg/kg ^[2]	Eye (rabbit): 3 mg SEVERE
		SKIN (RABBIT): 12%/6H (OPEN)-moderate
		Skin (rabbit): 5 mg/24h - mild
		SKIN (RAT): 12%/6H (OPEN) - moderate
magnesium carbonate hydroxide	TOXICITY	IRRITATION
	Not Available	Not Available
potassium nitrate	TOXICITY	IRRITATION
	dermal (rat) LD50: >5000 mg/kg ^[1]	Not Available
	Oral (rat) LD50: >2000 mg/kg ^[1]	
silicon	TOXICITY	IRRITATION
	Oral (rat) LD50: >50-300 mg/kg ^[1]	Eye: no adverse effect observed (not irritating) ^[1]
		Skin: no adverse effect observed (not irritating) ^[1]
nitrocellulose	TOXICITY	IRRITATION
	Oral (rat) LD50: >5000 mg/kg ^[2]	Not Available
lead styphnate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Not Available
	Inhalation (rat) LC50: >5.05 mg/14 h ^[1]	
	Oral (rat) LD50: >2000 mg/kg ^[1]	

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

SUCROSE	Oral (Human) TDLo: 9.6E-5 mg/kg
2-CHLOROACETOPHENONE	<p>Vomiting agents typically are disseminated as aerosols. The primary route of absorption is through the respiratory system. Exposure also can occur by ingestion, dermal absorption, or eye impact. The effects of the vomiting agents by any route of exposure are slower in onset and longer in duration than typical riot control agents ... On initial exposure, vomiting agents are irritants. This irritation is delayed for several minutes after contact. As a result of this delay, less early warning properties are present for those exposed. By the time symptoms of irritation occur and personnel consider donning their protective equipment, significant contamination already may have occurred. Systemic signs and symptoms subsequently follow the initial irritation and consist of headache, nausea, vomiting, diarrhea, abdominal cramps, and mental status changes. Symptoms typically persist for several hours after exposure. Death has been reported with excessive exposure.</p> <p>Under field conditions, vomiting agents can cause great discomfort to the victims; when released indoors, they can cause serious illness or death. Symptoms include irritation of eyes and mucous membranes, coughing, sneezing, severe headache, acute pain and tightness in the chest, nausea, and vomiting.</p> <p>Concentrations which elicit vomiting are estimated to be about 370 mg.min/m³.</p> <p>For 2-chloroacetophenone in riot control settings :</p> <ul style="list-style-type: none"> ▶ TIME COURSE: Exposure to chloroacetophenone (CN) generally causes instantaneous irritation of the eyes, respiratory tract, and skin. Initial irritation typically resolves within 15 to 30 minutes following decontamination. Eye irritation may persist if the eyes are rubbed. Eye redness and accumulation of fluid in the tissues surrounding the eye (periorbital edema) may take 1 to 2 days to resolve. Respiratory adverse health effects, such as accumulation of fluid in the lungs (pulmonary edema), may occur immediately after exposure or can be delayed up to 12 to 24 hours. Adverse effects to the skin occurring within 24 hours of exposure can be severe and may include redness, blistering, and broken blisters, with variable amounts of skin loss. ▶ EFFECTS OF SHORT-TERM (LESS THAN 8-HOURS) EXPOSURE: Adverse health effects due to chloroacetophenone (CN) exposure are dependent on concentration, duration of exposure, proximity to the exposure source, and location at time of exposure (indoors vs. outdoors). Exposure to extremely high levels, such as in an enclosed space and/or for a prolonged period of time, may cause severe respiratory effects and rarely death. Rapid heart rate (tachycardia), mildly elevated blood pressure (hypertension), agitation, and fainting (syncope), may occur as a result of pain, fear, or panic. ▶ EYE EXPOSURE: <ul style="list-style-type: none"> ▶ Threshold concentrations: Immediate burning pain, spasmodic blinking (blepharospasm), tear production (lacrimation), eye redness, runny nose (rhinorrhoea), coughing, sneezing, and pain, but usually no long term tissue damage. ▶ Severe: Inflammation of the cornea (keratitis), inflammation of the conjunctiva (conjunctivitis), chemical burns, loss of the outer layer of the cornea (corneal epithelium), sensitivity to light (photophobia), and blurred vision. Partial eye opacity is possible and may be permanent. ▶ Droplets of liquid or particles in the eyes may be corrosive and produce burns like those of a strong acid. ▶ Projectile particles may injure any part of the eye causing perforation, which may lead to permanent partial vision loss. ▶ INGESTION EXPOSURE: <ul style="list-style-type: none"> ▶ Discomfort in the middle abdominal (epigastric) region, burping, and metallic taste with burning sensation. ▶ Ingestion is unlikely to occur. ▶ INHALATION EXPOSURE: <ul style="list-style-type: none"> ▶ Mild to moderate: Runny nose (rhinorrhoea), coughing, sneezing, chest tightness, vocal cord spasm causing difficulty breathing, shortness of breath, and a choking feeling, burning sensation and pain of the nose and mouth, noisy breathing such as wheezing, salivation, metallic taste, nausea, vomiting (emesis). ▶ Severe: Fluid build-up in the lungs (pulmonary edema) up to 12 to 24 hours after exposure, immediate or delayed narrowing of the large airways (bronchospasm), inflammation and consolidation of the airspaces in the lung (bronchopneumonia). ▶ Pain, fear, and panic may result in agitation, fainting (syncope), increased heart rate (tachycardia), and/or mildly elevated blood pressure (hypertension). ▶ SKIN EXPOSURE: <ul style="list-style-type: none"> ▶ Mild to moderate: Irritation and pain. Moisture from humidity, sweat, or decontaminating water, may temporarily increase irritation and pain. ▶ Severe: Delayed redness (erythema), blistering (vesication), and denuded areas. <p>Effects include convulsions, respiratory stimulation, changes in kidney, ureter, bladder, skin and hair.</p>

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

SILICON	<p>Intraperitoneal injection of silicon produced only minor local trauma and foreign body reaction. Parenterally administered elemental silica is considered biologically inert.</p> <p>Dogs and rats fed 800 mg silicon/kg/day (as the dioxide) for 1 month showed no clinical signs or histological changes.</p> <p>The compound was largely eliminated in the faeces.</p> <p>Normal human cerebral cortex tissue contains about 3.8 ug/g silicon</p> <p>The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p>
LEAD STYPHNATE	<p>The following information refers to contact allergens as a group and may not be specific to this product.</p> <p>Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.</p>
2-CHLOROACETOPHENONE & SILICON	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.</p>
MAGNESIUM CARBONATE HYDROXIDE & SILICON & NITROCELLULOSE & LEAD STYPHNATE	<p>No significant acute toxicological data identified in literature search.</p>

Acute Toxicity	✓	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✓	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification
 ✓ – Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

potassium chlorate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	>1-mg/L	2
	EC50	48	Crustacea	>1-mg/L	2
	EC50	72	Algae or other aquatic plants	>1-mg/L	2
	EC10	72	Algae or other aquatic plants	>1-mg/L	2
	NOEC	72	Algae or other aquatic plants	<0.5mg/L	4

sucrose	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	2200000mg/L	3
	EC50	96	Algae or other aquatic plants	6020000mg/L	3

2-chloroacetophenone	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	29.533mg/L	3
	EC50	96	Algae or other aquatic plants	88.542mg/L	3

magnesium carbonate hydroxide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

potassium nitrate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	1-378mg/L	2
	EC50	48	Crustacea	490mg/L	2
	EC50	96	Algae or other aquatic plants	1181.887mg/L	3
	NOEC	720	Fish	58mg/L	2

Continued...

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
silicon	EC50	48	Crustacea	ca.35.4mg/L	2
	EC50	72	Algae or other aquatic plants	>100mg/L	2
	NOEC	72	Algae or other aquatic plants	ca.3.2mg/L	2
	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
nitrocellulose	EC50	96	Algae or other aquatic plants	579mg/L	4
	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
lead styphnate	LC50	96	Fish	0.001-mg/L	2
	EC50	48	Crustacea	0.38mg/L	2
	EC50	96	Algae or other aquatic plants	0.002-0.655mg/L	2
	NOEC	96	Algae or other aquatic plants	0.001-0.3mg/L	2

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
potassium chlorate	HIGH	HIGH
sucrose	LOW	LOW
2-chloroacetophenone	LOW (Half-life = 56 days)	LOW (Half-life = 30.79 days)
potassium nitrate	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
potassium chlorate	LOW (LogKOW = -4.6296)
sucrose	LOW (LogKOW = -3.7)
2-chloroacetophenone	LOW (LogKOW = 1.9276)
potassium nitrate	LOW (LogKOW = 0.209)

Mobility in soil

Ingredient	Mobility
potassium chlorate	LOW (KOC = 35.04)
sucrose	LOW (KOC = 10)
2-chloroacetophenone	LOW (KOC = 89.26)
potassium nitrate	LOW (KOC = 14.3)



SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> Explosives must not be thrown away, buried, discarded or placed with garbage. Explosives which are surplus, deteriorated or considered unsafe for transport, storage or use shall be destroyed and the statutory authorities shall be notified. This material may be disposed of by burning or detonation but the operation may only be performed under the control of a person trained in the safe destruction of explosives.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	
HAZCHEM	1YE

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

Land transport (ADG)

UN number	0303	
UN proper shipping name	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	
Transport hazard class(es)	Class	1.4G
	Subrisk	Not Applicable
Packing group	Not Applicable	
Environmental hazard	Not Applicable	
Special precautions for user	Special provisions	204
	Limited quantity	Not Applicable

Air transport (ICAO-IATA / DGR)

UN number	0303	
UN proper shipping name	Ammunition, smoke with or without burster, expelling charge or propelling charge	
Transport hazard class(es)	ICAO/IATA Class	1.4G
	ICAO / IATA Subrisk	Not Applicable
	ERG Code	1L
Packing group	Not Applicable	
Environmental hazard	Environmentally hazardous	
Special precautions for user	Special provisions	A132
	Cargo Only Packing Instructions	130
	Cargo Only Maximum Qty / Pack	75 kg
	Passenger and Cargo Packing Instructions	Forbidden
	Passenger and Cargo Maximum Qty / Pack	Forbidden
	Passenger and Cargo Limited Quantity Packing Instructions	Forbidden
	Passenger and Cargo Limited Maximum Qty / Pack	Forbidden

Sea transport (IMDG-Code / GGVSee)

UN number	0303	
UN proper shipping name	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	
Transport hazard class(es)	IMDG Class	1.4G
	IMDG Subrisk	Not Applicable
Packing group	Not Applicable	
Environmental hazard	Marine Pollutant	
Special precautions for user	EMS Number	F-B, S-X
	Special provisions	204
	Limited Quantities	0

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

POTASSIUM CHLORATE(3811-04-9) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2
Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	International Air Transport Association (IATA) Dangerous Goods Regulations
Australia Inventory of Chemical Substances (AICS)	International Maritime Dangerous Goods Requirements (IMDG Code)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)	United Nations Recommendations on the Transport of Dangerous Goods Model Regulations
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index	

SUCROSE(57-50-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
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2-CHLOROACETOPHENONE(532-27-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
 Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
 Australia Exposure Standards
 Australia Inventory of Chemical Substances (AICS)

International Air Transport Association (IATA) Dangerous Goods Regulations
 International Maritime Dangerous Goods Requirements (IMDG Code)
 United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

MAGNESIUM CARBONATE HYDROXIDE(7760-50-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 10 / Appendix C
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6

POTASSIUM NITRATE(7757-79-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
 Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes
 Australia Inventory of Chemical Substances (AICS)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)

International Air Transport Association (IATA) Dangerous Goods Regulations
 International Maritime Dangerous Goods Requirements (IMDG Code)
 United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

SILICON(7440-21-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards

Australia Inventory of Chemical Substances (AICS)

NITROCELLULOSE(9004-70-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
 Australia Dangerous Goods Code (ADG Code) - Goods Too Dangerous To Be Transported
 Australia Explosives Code (AE Code)
 Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
 Australia Inventory of Chemical Substances (AICS)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix A

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index
 International Air Transport Association (IATA) Dangerous Goods Regulations
 International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
 International Maritime Dangerous Goods Requirements (IMDG Code)
 United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

LEAD STYPHNATE(63918-97-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List
 Australia Dangerous Goods Code (ADG Code) - Goods Too Dangerous To Be Transported
 Australia Explosives Code (AE Code)
 Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
 Australia Inventory of Chemical Substances (AICS)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Index

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 10 / Appendix C
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
 Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
 International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
 International Air Transport Association (IATA) Dangerous Goods Regulations
 International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
 International Maritime Dangerous Goods Requirements (IMDG Code)
 United Nations Recommendations on the Transport of Dangerous Goods Model Regulations

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	No (2-chloroacetophenone)
Canada - NDSL	No (lead styphnate; sucrose; magnesium carbonate hydroxide; nitrocellulose; silicon; potassium chlorate; potassium nitrate)
China - IECSC	No (lead styphnate)
Europe - EINEC / ELINCS / NLP	No (nitrocellulose)
Japan - ENCS	No (sucrose; silicon)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	No (lead styphnate)
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (magnesium carbonate hydroxide)
Vietnam - NCI	No (lead styphnate)
Russia - ARIPS	No (lead styphnate; magnesium carbonate hydroxide)
Thailand - TECI	No (lead styphnate; magnesium carbonate hydroxide; 2-chloroacetophenone)
Legend:	Yes = All CAS declared ingredients are on the inventory No = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Revision Date	19/07/2017
Initial Date	Not Available

SDS Version Summary

Continued...

Combined Systems MODEL 3225 37mm CTG CN Smoke 5-Projectiles

Version	Issue Date	Sections Updated
2.1.1.1	18/07/2017	Appearance, Classification, Environmental

Other information

Ingredients with multiple cas numbers

Name	CAS No
magnesium carbonate hydroxide	7760-50-1, 12072-90-1
silicon	7440-21-3, 152284-21-4, 157383-37-4, 160371-18-6, 17375-03-0, 71536-23-7, 72516-01-9, 72516-02-0, 72516-03-1, 90337-93-2
lead styphnate	63918-97-8, 15245-44-0, 6594-85-0

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average
 PC – STEL: Permissible Concentration-Short Term Exposure Limit
 IARC: International Agency for Research on Cancer
 ACGIH: American Conference of Governmental Industrial Hygienists
 STEL: Short Term Exposure Limit
 TEEL: Temporary Emergency Exposure Limit.
 IDLH: Immediately Dangerous to Life or Health Concentrations
 OSF: Odour Safety Factor
 NOAEL :No Observed Adverse Effect Level
 LOAEL: Lowest Observed Adverse Effect Level
 TLV: Threshold Limit Value
 LOD: Limit Of Detection
 OTV: Odour Threshold Value
 BCF: BioConcentration Factors
 BEI: Biological Exposure Index

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