Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

Printing date 30.05.2013 Revision: 15.04.2013

1 Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Trade name: Defense Technology® 1687 and 1697 Series Fuze (M201A1)**

· **Article number:** 1687, 1687DT, 1697T, 1697TSC, M201A1

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.

· **Application of the substance / the preparation** Product Component

· **1.3 Details of the supplier of the Safety Data Sheet**

· **Manufacturer/Supplier:**
Safariland, LLC
11386 International Parkway
Jacksonville, FL 32218
Customer Care (800) 347-1200

· **Further information obtainable from:** Customer Care Department

· **1.4 Emergency telephone number:**
ChemTel Inc.
(800)255-3924, +1 (813)248-0585

2 Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**


GHS01 exploding bomb

Expl. 1.4	H204	Fire or projection hazard.


GHS08 health hazard

Carc. 1B	H350	May cause cancer.
Repr. 1A	H360Df	May damage the unborn child. Suspected of damaging fertility.
STOT RE 2	H373	May cause damage to organs through prolonged or repeated exposure.


GHS09 environment

Aquatic Chronic 2	H411	Toxic to aquatic life with long lasting effects.


GHS07

Acute Tox. 4	H302	Harmful if swallowed.
Acute Tox. 4	H332	Harmful if inhaled.
Flam. Sol. 2	H228	Flammable solid.
Ox. Sol. 3	H272	May intensify fire; oxidiser.

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· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**


T; Toxic

R45-60-61-23-48/23/24/25: May cause cancer. May impair fertility. May cause harm to the unborn child. Toxic by inhalation. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.


Xn; Harmful

R22: Harmful if swallowed.


F; Highly flammable

R11: Highly flammable.


N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
Explosive/deflagrating (fast burn rate) product. Keep away from heat. Do not subject to mechanical or electrical shock. Particles from firing may be harmful if inhaled. Do not take internally. Components may harm environment.
Individual cartridges may ignite if the actuator is released or if the unit is exposed to excess heat. Oxides of Nitrogen, Carbon, and Sulfur may be formed. Small quantities of various metal fumes and oxides may be formed during use.

· **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.
The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms**


GHS01 GHS07 GHS08 GHS09

· **Signal word** Danger

· **Hazard-determining components of labelling:**
barium chromate
lead chromate
potassium perchlorate

· **Hazard statements**
H204 Fire or projection hazard.

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H228 Flammable solid.
H272 May intensify fire; oxidiser.
H302+H332 Harmful if swallowed or if inhaled.
H350 May cause cancer.
H360Df May damage the unborn child. Suspected of damaging fertility.
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P281 Use personal protective equipment as required.
P202 Do not handle until all safety precautions have been read and understood.
P373 DO NOT fight fire when fire reaches explosives.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
P401 Store in accordance with local/regional/national/international regulations.
P405 Store locked up.

· **Additional information:**
Warning! Contains lead.
Can become highly flammable in use.
Safety data sheet available on request.
To avoid risks to human health and the environment, comply with the instructions for use.
Restricted to professional users.
Keep out of the reach of children

· **Hazard description:**

· **WHMIS-symbols:**
B6 - Reactive flammable material
C - Oxidizing materials
D1A - Very toxic material causing immediate and serious toxic effects
D2A - Very toxic material causing other toxic effects

· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 2
Reactivity = 2

This substance possesses oxidizing properties.

· **HMIS-ratings (scale 0 - 4)**

Health = *3
Fire = 2
Reactivity = 2

* - Indicates a long term health hazard from repeated or prolonged exposures.

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· **HMIS Long Term Health Hazard Substances**	
7758-97-6	lead chromate

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Explosive Product Notice**
PREVENTION OF ACCIDENTS IN THE USE OF EXPLOSIVES - The prevention of accidents in the use of explosives is a result of careful planning and observance of the best known practices. The explosives user must remember that he is dealing with a powerful force and that various devices and methods have been developed to assist him in directing this force. He should realize that this force, if misdirected, may either kill or injure both him and his fellow workers.

WARNING - All explosives are dangerous and must be carefully handled and used following approved safety procedures either by or under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, or ordinances. If you have any questions or doubts as to how to use any explosive product, DO NOT USE IT before consulting with your supervisor, or the manufacturer, if you do not have a supervisor. If your supervisor has any questions or doubts, he should consult the manufacturer before use.

3 Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**
Ranges reflect weight of individual component when compared to toal weight of chemical substances in product, but does not include components not involved in chemical reactions, such as casings, fasteners, and other similar items.

CAS: 10294-40-3 EINECS: 233-660-5 Index number: 056-002-00-7	barium chromate Xn R20/22 Acute Tox. 4, H302; Acute Tox. 4, H332	30-60%
CAS: 7439-96-5 EINECS: 231-105-1	manganese Xn R48	15-35%
CAS: 7758-97-6 EINECS: 231-846-0 Index number: 082-004-00-2	lead chromate T Carc. Cat. 2, Repr. Cat. 1, 3 R45-61; Xn R62; N R50/53 R33 Carc. 1B, H350; Repr. 1A, H360Df; STOT RE 2, H373 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	5-25%
CAS: 7440-32-6 EINECS: 231-142-3	titanium F R15-17 Pyr. Sol. 1, H250; Self-heat. 1, H251; Water-react. 1, H260	5-25%

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CAS: 7778-74-7 EINECS: 231-912-9 Index number: 017-008-00-5	potassium perchlorate Xn R22; O R9 Ox. Sol. 1, H271 Acute Tox. 4, H302	< 10%
CAS: 1309-37-1 EINECS: 215-168-2	diiron trioxide / iron (III) oxide	< 5,0%
CAS: 7440-67-7 EINECS: 231-176-9 Index number: 040-001-00-3	zirconium powder (pyrophoric) F R15-17 Pyr. Sol. 1, H250; Water-react. 1, H260	< 5,0%
CAS: 9004-70-0 EC number: 603-037-0	Nitrocellulose, colloided, granular E R1-3 Unst. Expl., H200	< 3,0%
CAS: 9003-20-7	Poly(vinyl acetate)	< 1,0%

· **SVHC**

7758-97-6	lead chromate

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

· **4.1 Description of first aid measures**
· **General information:**
Do not leave affected persons unattended.
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Remove breathing equipment only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:**
Take affected persons into fresh air and keep quiet.
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:**
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; call for medical help immediately.
A person vomiting while laying on their back should be turned onto their side.
Call for a doctor immediately.
· **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **Hazards** Danger of impaired breathing.

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· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** CO2, sand, extinguishing powder. Do not use water.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **5.2 Special hazards arising from the substance or mixture**
Product may explode if burned in confined space. Individual cartridges may explode. Mass explosion of many cartridges at once is unlikely.
During heating or in case of fire poisonous gases are produced.
· **5.3 Advice for firefighters**
· **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information** In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

6 Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Remove persons from danger area.
Ensure adequate ventilation
Protect from heat.
Keep away from ignition sources.
Wear protective equipment. Keep unprotected persons away.
· **6.2 Environmental precautions:** Do not allow product to reach sewage system or any water course.
· **6.3 Methods and material for containment and cleaning up:**
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
Dispose of the material collected according to regulations.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **7.1 Precautions for safe handling**
Use only in well ventilated areas.
Take note of emission threshold.
Handle with care. Avoid jolting, friction and impact.
· **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect from heat.

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Protect against electrostatic charges.
Keep respiratory protective device available.
Emergency cooling must be available in case of nearby fire.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:**
Store away from flammable substances.
Do not store together with oxidizing and acidic materials.
Store away from foodstuffs.
· **Further information about storage conditions:**
Protect from heat and direct sunlight.
Protect from humidity and water.
Store under lock and key and with access restricted to technical experts or their assistants only.
Store in a cool place.
· **7.3 Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
10294-40-3 barium chromate	
PEL (USA)	Short-term value: C 0,1* mg/m³ *as CrO3
REL (USA)	0,001 mg/m³ as Cr(VI), 10-hr TWA
TLV (USA)	0,05 mg/m³ as Cr
EL (Canada)	Short-term value: C0,1 mg/m³ Long-term value: 0,025 mg/m³ as Cr; ACIGH A1, IARC 1
7758-97-6 lead chromate	
IOELV (EU)	2 mg/m³ as Cr
REL (USA)	0,001 mg/m³ as Cr(VI), 10-hr TWA
TLV (USA)	0,05* 0,012** mg/m³ *as Pb; BEI ; **as Cr
EL (Canada)	0,05* 0,012** mg/m³ ACIGH A2, IARC 2A; R; *as Pb;**as Cr
EV (Canada)	0,012 mg/m³ as Cr

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7439-96-5 manganese	
PEL (USA)	Short-term value: C 5* ** mg/m³ as Mn *and inorganic compounds **fume
REL (USA)	Short-term value: 3* ** mg/m³ Long-term value: 1* ** mg/m³ as Mn *and inorganic compounds **fume
TLV (USA)	(0,2) NIC-0,02* NIC-0,2* mg/m³ as Mn;+ inorg. comp.;*resp.,**inh. fraction:NIC-A4
EL (Canada)	0,2 mg/m³ as Mn; R
EV (Canada)	0,2 mg/m³ as manganese

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Do not eat, drink, smoke or sniff while working.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Do not inhale dust / smoke / mist.
· **Respiratory protection:** Use suitable respiratory protective device when high concentrations are present.
· **Protection of hands:**
Strong material gloves
For the permanent contact in work areas with heightened risk of injury (mechanical hazard) no recommendation for a suitable glove material can be given.
· **Material of gloves** Strong material gloves
· **Eye protection:**

Safety glasses

Face protection
· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**

Form:	Solid material
Colour:	According to product specification
· **Odour:**	Odourless

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· **Odour threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Highly flammable.
· **Ignition temperature:**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Self-igniting:**	Product is not self-igniting.
· **Danger of explosion:**	Not determined.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure:**	Not applicable.
· **Density:**	4,67 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with water:**	Insoluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **9.2 Other information**	No further relevant information available.

10 Stability and reactivity

· **10.1 Reactivity**
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
Explosive thermal decomposition.
· **10.3 Possibility of hazardous reactions**
Contact with acids releases flammable gases.
Contact with acids releases toxic gases.
Acts as an oxidizing agent on organic materials such as wood, paper and fats.
Exothermic reaction.

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· **10.4 Conditions to avoid**
Keep ignition sources away - Do not smoke.
Store away from oxidizing agents.
· **10.5 Incompatible materials:** Contact with acids liberates toxic gases.
· **10.6 Hazardous decomposition products:**
Possible in traces.
Toxic metal oxide smoke
Bariumoxide vapour
Leadoxide vapour
Irritant gases/vapours
Poisonous gases/vapours

11 Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**		
7758-97-6 lead chromate		
Oral	LD50	12000 mg/kg (mouse)
7439-96-5 manganese		
Oral	LD50	9000 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
Toxicological classifications are based on product ingredients without regard to overall form of product. In actual usage, hazards may be mitigated by solid non-inhalable form and subsequent placement of materials into protective canister. This does not remove the requirements for proper protective equipment as indicated in Section 8.
Product is suspected to cause birth defects.
Product is suspected to cause damage to fertility.
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Toxic
Harmful
Carcinogenic.
Normal handling of the undeployed product poses little or no health hazards, One should avoid inhalation by wearing appropriate respiratory protection when exposed to the chemical ingredients of the product above listed TLV's or when exposed to the post ignition by-products. This product is a solid material which contains the various components within a metal shell. Therefore, under normal handling of this product, no exposure to any harmful materials will occur. When the product is used, particles may be generated which may be irritating to the eyes and the respiratory tract.

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12 Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:**
The product contains materials that are harmful to the environment.
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.
· **12.2 Persistence and degradability** The product is partially biodegradable. Significant residuals remain.
· **12.3 Bioaccumulative potential** May be accumulated in organism
· **12.4 Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Very toxic for fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

13 Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.
Damaged materials pose a danger to anyone in the immediate area; consult experts for disposal of damaged products.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **14.1 UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN0368
· **14.2 UN proper shipping name**	
· **DOT**	Fuzes, Igniting, 1.4S
· **ADR**	0368, Fuzes, Igniting

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· **IMDG, IATA**	Fuzes, Igniting 1.4S
· **14.3 Transport hazard class(es)**	
· **DOT, IMDG, IATA**	
	
· **Class**	1.4
· **Label**	1.4S
· **ADR**	
	
· **Class**	1.4
· **Label**	1.4S
· **14.4 Packing group**	
· **DOT, IMDG, IATA**	N/A
· **ADR**	N/A
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No
· **Special marking (ADR):**	Symbol (fish and tree)
· **14.6 Special precautions for user**	Not applicable.
· **Danger code (Kemler):**	-
· **EMS Number:**	F-A,S-Q
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Transport category**	4
· **Tunnel restriction code**	E
· **UN "Model Regulation":**	UN0368, FUZES, IGNITING, 1.4S,

15 Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **United States (USA)**
· **SARA**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

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· **Section 313 (Specific toxic chemical listings):**

7439-96-5	manganese

· **TSCA (Toxic Substances Control Act):**

10294-40-3	barium chromate
7758-97-6	lead chromate
7439-96-5	manganese

· **Proposition 65 (California):**

· **Chemicals known to cause cancer:**

10294-40-3	barium chromate
7758-97-6	lead chromate

· **Chemicals known to cause reproductive toxicity for females:**

10294-40-3	barium chromate
7758-97-6	lead chromate

· **Chemicals known to cause reproductive toxicity for males:**

10294-40-3	barium chromate
7758-97-6	lead chromate

· **Chemicals known to cause developmental toxicity:**

10294-40-3	barium chromate
7758-97-6	lead chromate

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

7758-97-6	lead chromate	K
7439-96-5	manganese	D

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

10294-40-3	barium chromate	A1
7758-97-6	lead chromate	A2

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

10294-40-3	barium chromate
7758-97-6	lead chromate

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Canada**

· **Canadian Domestic Substances List (DSL)**

10294-40-3	barium chromate
7758-97-6	lead chromate
7439-96-5	manganese

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· **Canadian Ingredient Disclosure list (limit 0.1%)**	
10294-40-3	barium chromate
7758-97-6	lead chromate

· **Canadian Ingredient Disclosure list (limit 1%)**	
7439-96-5	manganese

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**	
7758-97-6	lead chromate

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H200 Unstable explosives.
H250 Catches fire spontaneously if exposed to air.
H251 Self-heating: may catch fire.
H260 In contact with water releases flammable gases which may ignite spontaneously.
H271 May cause fire or explosion; strong oxidiser.
H302 Harmful if swallowed.
H332 Harmful if inhaled.
H350 May cause cancer.
H360Df May damage the unborn child. Suspected of damaging fertility.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

R1 Explosive when dry.
R15 Contact with water liberates extremely flammable gases.
R17 Spontaneously flammable in air.
R20/22 Harmful by inhalation and if swallowed.
R22 Harmful if swallowed.
R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.
R33 Danger of cumulative effects.
R45 May cause cancer.
R48 Danger of serious damage to health by prolonged exposure.
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.
R9 Explosive when mixed with combustible material.

(Contd. on page 15)

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and GHS

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Trade name: Defense Technology® 1687 and 1697 Series Fuze (M201A1)

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· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

· **Sources**
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