

MATERIAL SAFETY DATA SHEET

MANUFACTURER	GENERAL DYNAMICS ORDNANCE AND TACTICAL SYSTEMS – CANADA INC. 5, Montée des Arsenaux Le Gardeur, Québec, Canada J5Z 2P4
EMERGENCY PHONE NUMBER:	(450) 581-3080
24-HOUR NUMBER:	1-888-922-3330 (Canada/U.S.A.) 1-514-981-5228 (International)
EMERGENCY RESPONSE PLAN:	ERP2-1388
MATERIAL:	CARTRIDGE 7.62 MM SRTA
ISSUE DATE:	March 23, 2011

SECTION #1: PRODUCT INFORMATION	
Product Family:	CARTRIDGE, 7.62 MM
Proper Shipping Name :	CARTRIDGES FOR WEAPONS, INERT PROJECTILE; or CARTRIDGES, SMALL ARMS
Class:	1.4S, UN0012

SECTION #2: HAZARDOUS INGREDIENTS				
COMPONENTS	%	CAS NUMBER	LD ₅₀ OF MATERIAL (SPECIES AND ROUTE)	LC ₅₀ OF MATERIAL (SPECIES)
Cartridge case				
Copper	44	7440-50-8	Not established	Not established
Zinc	19	7440-66-6	Not established	Not established
Projectile				
Copper	15	7440-50-8	Not established	Not established
Nylon	1	63428-83-1	Not established	Not established
Binder (including titanium dioxide)	4	13463-67-7	Not established	Not established
Propellant				
Nitrocellulose	14	9004-70-0	Not established	Not established
Graphite	<0.1	7782-42-5	> 10 g/kg oral rat	> 64.4 mg/L rat
Potassium salt	0.1-1	7757-79-1	3015 mg/kg oral rat	Not established
Diphenylamine	0.1-1	122-39-4	300 mg/kg oral guinea pig	Not established
Nitroglycerine	2	55-63-0	105 mg/kg oral rat	Not established
Primer				
Lead styphnate (as lead)	0.1-1	15245-44-0	Not established	Not established

MATERIAL SAFETY DATA SHEET**SECTION # 2: HAZARDOUS INGREDIENTS**

COMPONENTS	%	CAS NUMBER	LD ₅₀ OF MATERIAL (SPECIES AND ROUTE)	LC ₅₀ OF MATERIAL (SPECIES)
Barium nitrate	0.1-1	10022-31-8	266 mg/kg oral mouse	Not established
Antimony trisulfide	<0.1	1345-04-6	1 g/kg ipr rat	Not established
Aluminium powder	<0.1	7429-90-5	Not established	Not established
Pentaerythriol (PETN)	<0.1	115-77-5	18.5 g/kg oral mouse	Not established
Tetrazene	<0.1	31330-63-9	Not established	Not established

SECTION # 3: PHYSICAL DATA**PHYSICAL DATA:**

Boiling Point:	Not Applicable
Melting Point:	Not Applicable
Vapor Pressure:	Not Applicable
Solubility (Water)	None
Evaporation Rate:	Not Applicable
Percent Volatile:	Not Applicable
Vapor Density (AIR-1)	Not Applicable
Bulk Density:	Not Applicable
Appearance	Small caliber cartridge, brass cartridge case, composite projectile
Odor:	None
Odor Threshold	None
Flammable:	Yes (propellant)
Pyrophoric:	Not established
Explosive:	Yes (primer)
Unstable:	No
Water Reactive:	Yes (primer)

SECTION # 4: FIRE & EXPLOSION DATA

Flash Point:	Not Established
Auto Ignition Temperature:	120°C (250°F) (primer formulation)
Upper Explosive Limits (%):	Not Established
Lower Explosive Limits (%):	Not Established

Fire and Explosion Hazards:

May ignite if heated to 120°C (250°F) independent of air.

Unconfined ignited cartridges can produce low velocity metallic fragments which may cause eye injury or superficial skin wounds if unprotected by standard firefighter turnout gear.

Fire may produce irritating, corrosive and/or toxic gases.

Extinguishing Media:	Water
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CARGO FIRES

Packages bearing the 1.4S label or packages containing material classified as 1.4S are designed or packaged in such manner that when involved in a fire, may burn vigorously with localized detonations and projection of fragments.

Effects are usually confined to immediate vicinity of packages.

If fire threatens cargo area containing packages bearing the 1.4S label or packages containing material classified as 1.4S, consider isolating at least 15 meters (50 feet) in all directions. Fight fire with normal precautions from a reasonable distance.

Tire or vehicle fires:

Use plenty of water - FLOOD it! If water is not available, use CO2, dry chemical or dirt.

If possible, and WITHOUT RISK, use unmanned hose holders or monitor nozzles from maximum distance to prevent fire from spreading to cargo area.

Pay special attention to the tire fires as re-ignition may occur. Stand by with extinguisher ready.

Evacuation

Large spill: Consider initial evacuation for 50 meters (163 feet) in all direction.

The evacuation radius will vary according to atmospheric conditions.

Supplemental Information:

Transportation Emergencies: Contact MD-UN at 1-888-922-3330 (Canada/U.S.A) or 1-514-981-5228 (International). Consult the Transport Canada (DOT) Response Guide book for instructions for handling emergencies involving this product.

SECTION # 5: REACTIVITY DATA

Stability	Stable under normal use conditions.
Polymerization	Will not occur.
Conditions to avoid	Individual cartridges may ignite if the primer is struck. Cartridge may ignite if heated to 120°C (250°F) independent of air.
Incompatible Materials	Oils, acids, alkalis, ammonia, chlorates, iodate, acetylene, fluorine, boron, arsenic, germanium, titanium, carbon dioxide, sulphur, sodium acetate, tin, silver oxide, water, organic materials and other corrosive materials.
Hazardous Decomposition Materials	Nitrogen oxides, carbon, carbon oxides, sulfur, sulfur oxides, copper oxides, calcium (lime) and butanol. Other dust and fumes may also be produced (aluminium, barium, antimony and lead).

SECTION # 6: TOXICOLOGICAL PROPERTIES

Physical Hazards:	
Oxidizer:	Yes
Organic Peroxide:	No
Corrosive:	No
Compressed gas:	No
Irritant:	Yes
Skin Hazard:	Yes
Eye Hazard:	Yes
Toxic Agent:	No
Sensitizer:	No
Carcinogen:	No
Reproductive Toxin:	Yes
Blood Toxin:	Yes
Nervous System Toxin:	Yes
Lung Toxin:	Yes
Liver Toxin:	Yes
Kidney Toxin:	Yes

SECTION # 6: TOXICOLOGICAL PROPERTIES

Potential Health Effects: The following hazards are not expected to be present unless the product is fired, or otherwise discharged so that gases, fumes, or projectiles are created. Normal handling and shipping should not cause exposure to these hazards.

Inhalation: After cartridges have been fired, dust, vapours, and/or fumes may be irritating to the respiratory system.

Ingestion: After cartridges have been fired, dust, vapours, and/or fumes may be absorbed by the digestive system and be irritating.

Skin Contact: After cartridges have been fired, dust, vapours, and/or fumes may cause irritation.

Skin Absorption: After cartridges have been fired, dust can be absorbed through the pores if left on the skin.

Eye Contact: After cartridges have been fired, dust, vapours, and/or fumes may cause irritation.

Effects of Overexposure to products of combustion:

Acute Overexposure: If left untreated, weakness, vomiting, loss of appetite, uncoordinated body movements, convulsion, stupor, and possibly coma may occur. Damage is possible to the reproductive systems in both males and females.

Exposure Limits of Material:

COMPONENTS	ACGIH TLV (TWA)	OSHA PEL (TWA)	REMARKS
Cartridge case			
Copper (as dust)	1 mg/m ³	1 mg/m ³	A4, IDLH, metal fume fever, upper respiratory tract irritation, skin and gastrointestinal irritation, liver, kidneys
Zinc (as zinc oxide)	2 mg/m ³	5 mg/m ³	IDLH, metal fume fever, decreased pulmonary function
Projectile			
Copper (as dust)	1 mg/m ³	1 mg/m ³	A4, IDLH, metal fume fever, upper respiratory tract irritation, skin and gastrointestinal irritation, liver, kidneys
Nylon	Not established	Not established	Dermatitis
Binder (including titanium dioxide*, as dust)	10 mg/m ³ (TiO ₂)	10 mg/m ³ (TiO ₂)	A4, eye, and lower respiratory tract irritation
Propellant			
Nitrocellulose	Not established	Not established	Skin and eye irritation
Nitroglycerine	0.05 ppm	0.2 ppm	Eye and skin irritation, vasodilation, headache
Graphite	2 mg/m ³	2.5 mg/m ³	IDLH, pneumoconiosis, eye and skin irritation, skin corrosion, skin sensitization, chronic toxicity, carcinogenicity, teratogenicity/embryotoxicity, reproductive toxicity, mutagenicity
Potassium salt	Not established	Not established	Skin, eye and respiratory tract irritation, abdominal pain, confusion, convulsions, formation of methaemoglobin
Diphenylamine	10 mg/m ³	10 mg/m ³	A4, liver and kidney damage, hematologic effects, eye and respiratory tract irritation

SECTION # 6: TOXICOLOGICAL PROPERTIES

Primer			
Lead styphnate (as lead)	0.05 mg/m ³	0.05 mg/m ³	A3, BEI, IDLH, liver, central and peripheral nervous system impairment, hematologic effects, eye and skin irritation
Barium nitrate (as soluble compounds)	0.5 mg/m ³	0.5 mg/m ³	A4, eye, skin and gastrointestinal irritation, muscular stimulation, cardiac and muscular disorders
Antimony trisulfide	0.5 mg/m ³	0.5 mg/m ³	A4, skin, eye and upper respiratory tract irritation
Aluminium powder	1 mg/m ³	5 mg/m ³	A4, pneumoconiosis, lower respiratory tract irritation, neurotoxicity
Pentaerythritol (PETN)	10 mg/m ³	15 mg/m ³	Eye, skin and upper respiratory tract irritation
Tetrazene	Not established	Not established	Respiratory problems, asthmatic reaction, eczema

***Titanium dioxide:** Titanium dioxide has recently been classified by the International Agency for Research on Cancer (IARC) as an IARC group 2B "possibly carcinogen to humans".

CARCINOGENICITY DESIGNATION A4 – Not classifiable as a Human Carcinogen: Agents which cause concern that they could be carcinogenic for human but which cannot be assessed conclusively because of lack of data. *In vitro* or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

CARCINOGENICITY DESIGNATION A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histological type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

CARCINOGENICITY DESIGNATION A2 – Suspected Human Carcinogen: Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; OR, the agent is carcinogen in experimental animals at dose(s), by route(s) of exposure, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. The A2 is used primarily when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans.

CARCINOGENICITY DESIGNATION A1 – Confirmed Human Carcinogen: The agent is carcinogenic to humans based on the weight of evidence from epidemiologic studies.

BIOLOGICAL EXPOSURE INDICES (BEIs) - The ACGIH has adopted a BEI for this chemical. BEIs provide an indication of worker exposure by measuring the chemical or its breakdown products in the body or by measuring biochemical changes resulting from exposure to the chemical. Consult the BEI documentation for further information.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH) - The OSHA regulation defines the term as an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

NOTE - In many jurisdictions, exposure limits are similar to the ACGIH TLVs. Since the manner in which exposure limits are established, interpreted, and implemented can vary, obtain detailed information from the appropriate government agency in each jurisdiction.

Many jurisdictions have specific regulations requiring worksite programs for lead. Obtain detailed information from the appropriate government agency in each jurisdiction.

SECTION # 7: PREVENTIVE MEASURES**General Safety Precautions:**

Avoid impact on primer which is impact sensitive

Ventilation:

Use in well ventilated area

Protective Equipment – Eyes:

Wear ANSI-approved goggles or Safety glasses.

Protective Equipment – Gloves:

Not generally required.

Protective Equipment – Respirator:

Use NIOSH approved respirator to maintain exposure level below listed PEL's and or TLV's in a non-vented area.

Protective Equipment – Hearing Protection:

Hearing protection recommended. Hearing protection should have an EPA-NRR of 20 or greater.

Leak and Spill Procedure /Waste Disposal:

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).

All equipment used when handling the product must be grounded.

Do not touch or walk through the spilled material.

Do not operate radio transmitters within 100 meters (300 feet) of electric detonators.

Do not clean up or dispose of, except under supervision of a specialist.

The recommended means for disposing of scrap material usually involves demilitarization of cartridges (i.e.: separating all explosive elements for individual destruction, it can also be done by open detonation but it is not the preferred way).

After components are scrapped by proper incineration, the remaining scrap material should be disposed of or recycled in accordance with all applicable local, provincial (state) and federal regulations.

Handling and Storage Precautions:

Store in a dry, cool area. Avoid prolonged temperature at or above 85°C (185°F). Do not crush or drop packages. Avoid heat, electrical current, and acids. Keep away from fire, heat source or direct sunlight. GENERAL DYNAMICS ORDNANCE AND TACTICAL SYSTEMS – CANADA INC. products are packaged and shipped in accordance with applicable Transport Canada Regulations. To ensure the highest level of safety while storing these products, keep product in the original packaging until ready to use. When handling product, proper anti-static procedures should be maintained if loose powder is exposed.

SECTION # 8: FIRST AID MEASURES

The following treatments may be necessary if the product is fired, or otherwise discharged so that gases, fumes, or projectiles are created. Normal handling and shipping should not cause exposure to these hazards.

Eyes:

Wash with large amounts of fresh water for 20 minutes keeping eyelids open. Seek medical attention.

Skin:

Wash contaminated area with soap and water at least 20 minutes.

Inhalation:

Remove from exposure, to fresh air. Get medical attention if experiencing effects of overexposure.

SECTION # 9: PREPARATION INFORMATION

Prepared by	Health and Security Department
Phone number:	(450) 581-3080
Date:	March 23, 2011

NOTICE OF READER

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